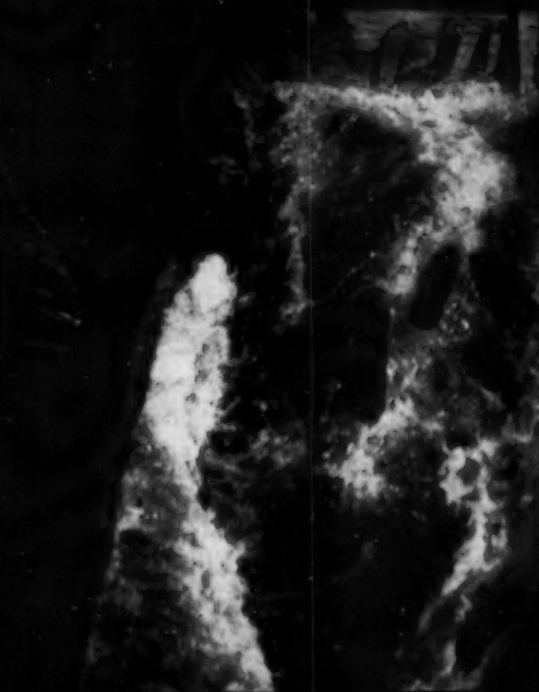
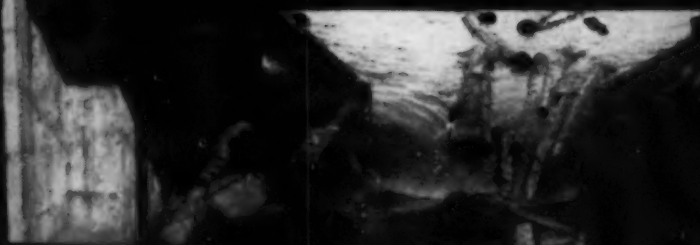


CANADIAN GEOGRAPHICAL JOURNAL

NOVEMBER
1939

VOL. XIX
NO. 5



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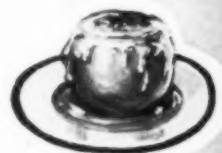
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CANADIAN GEOGRAPHICAL JOURNAL

Editor

-

Gordon M. Dallyn

172 WELLINGTON STREET, OTTAWA

This magazine is dedicated to the interpretation, in authentic and popular form, with extensive illustration, of geography in its widest sense, first of Canada, then of the rest of the British Commonwealth, and other parts of the world in which Canada has special interest.

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Photo by G. D. Scott, The E. B. Eddy Co., Ltd.

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The British standard of spelling is adopted substantially as used by the Dominion Government and taught in most Canadian schools, the precise authority being the Oxford Dictionary as edited in 1936.

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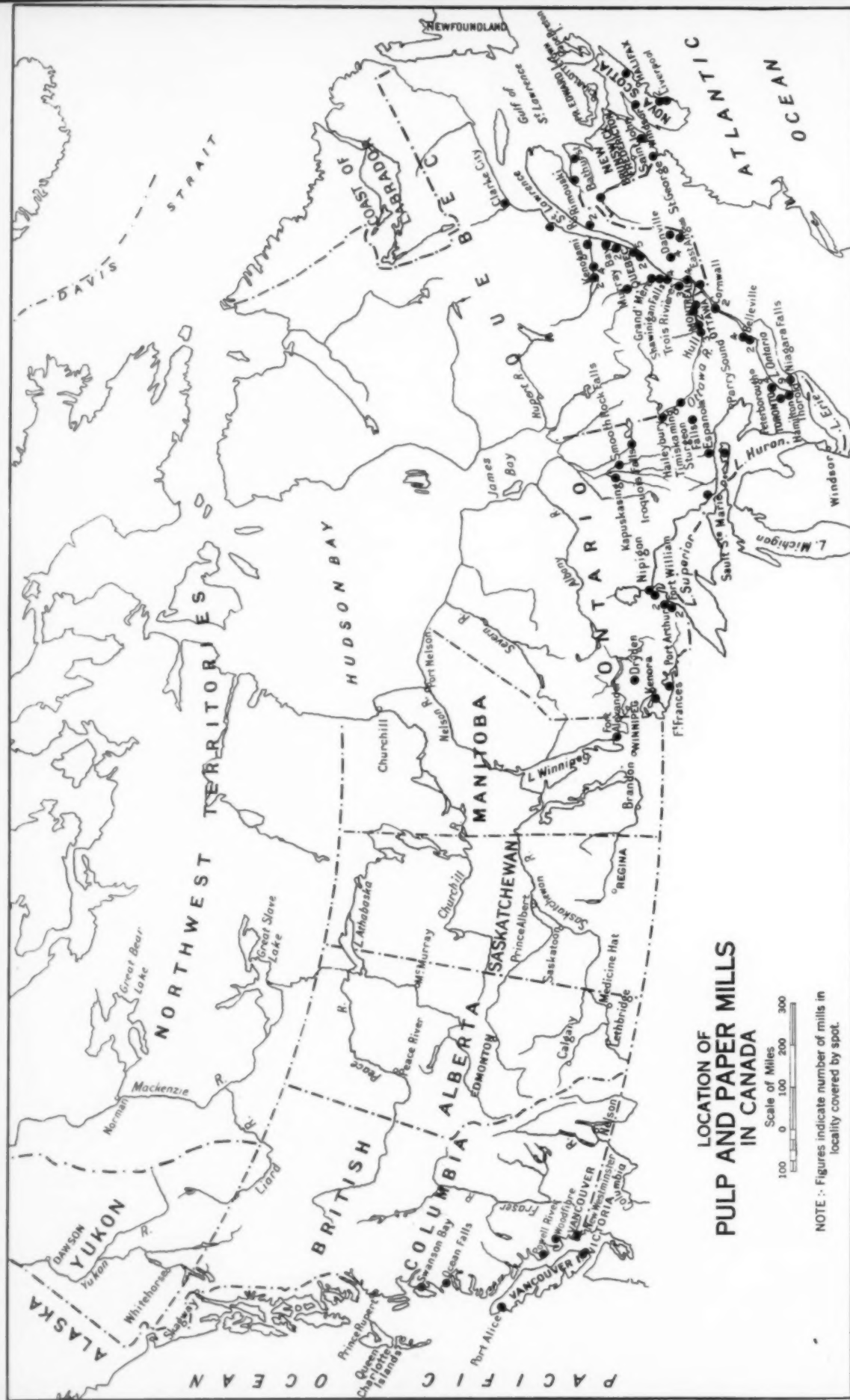
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Courtesy Department Mines and Resources, Ottawa.

CANADA'S PULP & PAPER INDUSTRY

by J. NEWELL STEPHENSON

PAPER-MAKING in Canada is much older than most people realize, although the industry in the Dominion is a mere infant of some 134 years compared to the 2044 years that have elapsed since T'sai Lun made the first sheet of paper. In 105 B.C. this ingenious Chinaman discovered that macerated vegetable fibres, suspended in water, are aimed in all directions, and that if the water is allowed to drain away through the perforated bottom of a tray holding such a suspension, the fibres interweave, and form a mat. This mat can be removed, pressed and dried. It is paper. The paper can be improved by brushing it with a thin starch and rubbing the surface to make it smooth.

The principles discovered by T'sai Lun are still the basis for paper-making, although tremendous progress has been made in the development of mechanical and chemical processes, and the invention of machinery and equipment for its manufacture. From China, the art spread through India and Asia Minor to Northern Africa and to Europe, and thence to America. Down through the centuries, in every country, have appeared men who have advanced the art and science of paper-making. A Dutchman invented the beater; a Frenchman the fourdrinier machine; an Englishman the cylinder machine; a Canadian and a German the way to make groundwood pulp; an Englishman how to make soda pulp; a Swede how to make sulphate pulp; an Austrian and an American how to make sulphite pulp; a German how to size paper with rosin — and progress still goes on apace. In fact, greater strides have been made in the brief period since paper has been made in Canada, than in the previous centuries and Canadians have contributed much to this technical and mechanical progress.

The First Epoch

In the year 1805, when Ware started the first paper mill in Canada at St. Andrews East, to make paper for the *Montreal Gazette*, the Fourdrinier brothers were still working on the development of their machine for making paper in a continuous sheet. The second Canadian mill

was the Bedford mill, near Halifax, Nova Scotia, started by Anthony Holland in 1820. The third mill in Canada, started by Crooks at Crook's Hollow, near Greensville, Ontario, about 1826 was, like those just mentioned, a "hand-made" mill. Crooks was given a reward by the government of Upper Canada for his success. The Don Valley mill (Eastwood & Skinner) was established about the same time as the Crooks enterprise. These mills all used rags for their raw material, and, since the methods available for stock preparation and washing were poor and bleaching and colouring as we think of it were unknown, the product was naturally inferior in both quality and colour. But it was paper.

In those days most of the paper used in Canada was brought from England or France, where they had enough white linen and cotton rags to make white paper. A considerable amount of paper is still being imported, though the necessity for doing so has practically disappeared as will be shown. Some of the early importers, such as Rolland, McFarlane, and Buntin, are well-known paper-makers and merchants to-day.

The Second Epoch.

The first period of Canada's paper-making history, during which the few scattered mills turned out small quantities of hand-made papers, ended about 1840, with the general introduction of paper-making machines, although cylinder machines had been installed at Crook's Hollow and Don Valley about 1832. Not many mills could afford this new equipment. Among the earliest to do so were the Thompsons at Napanee, Ontario; Buntin at Valleyfield, Quebec; Angus, Logan and Company at Windsor Mills, Quebec; Reid's at Loretteville, near Quebec, and the Fords at Portneuf, Quebec.

This second epoch, which lasted about forty years, was also marked by the successful introduction of wood fibre as a source of paper-making material. The establishment of wood-pulp was the beginning of a development that has made pulp and paper-making the most important manufacturing industry in Canada, and has made Canada the World's second



largest producer of these commodities. It ranks first in capital invested, salaries and wages, net value of production, and second in gross value of production and employment. Agriculture is not a manufacturing industry.

In this connection, it is interesting to know that Charles Fenerty, experimenting about 1838 near Halifax, was probably the first man to make paper from wood fibre, although wasps had done it since Creation, and the mills of Alexander Buntin at Valleyfield in 1866 made the first commercial mechanical (groundwood) pulp on this continent.

Soon after Buntin introduced the use of groundwood, which he made from peeled maple blocks about one foot long, other companies took it up. To-day Canada makes several million tons a year, mostly out of spruce and balsam, although the use of so-called hardwoods is being revived.

The year 1864 marked the first chemical pulp mill in the Dominion, which was commenced by the firm of Angus, Logan & Company. Production started in 1866 and the pulp was shipped in bags. In 1873 Angus and his associates incorporated the Canada Paper Company.

Between 1840 and 1880 a number of paper mills were established in Quebec and Ontario, but it was not until the turn of the century that mills were built in other provinces. The mills of those days made the coarser papers for printing and wrapping, the better grades still coming from overseas. Newspapers, of course, were small both in size and circulation. The late S. J. B. Rolland told the writer of selling paper from his father's store to Lord Athelstan, then Hugh Graham, who

1. The spring flood floats the logs to the mill.
2. Log jam dams the river.
3. Expert rivermen attack the jam.
4. The dog-team is still much used.
5. Swift, treacherous waters require expert boat-manship.
6. A main depot in the woods, head-quarters for logging operations.

Photos 2 and 3—Price Bros. & Co. Limited, others The E. B. Eddy Co., Limited

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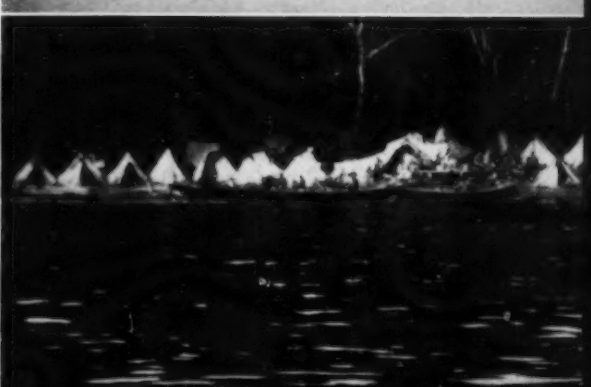
took it ream by ream to his shop to print the *Montreal Star*. The late George M. Loy remembered how, in the 'fifties', paper was sent from Valleyfield to Montreal by boat in summer, and by team in winter.

Third Epoch.

The thirty years from 1880 to 1910 were marked by three great events: The Rollands started the first high-grade paper mill in 1882 at St. Jérôme, Quebec; the Riordons at Merriton, Ontario, and the Toronto Paper Manufacturing Company at Cornwall, Ontario, in the late 'eighties' began the manufacture of sulphite pulp; in 1908 the first sulphate (kraft) pulp made on this continent was produced at East Angus, Quebec, where now is the Brompton Pulp & Paper Company, Limited. But wood fibre as paper-making material was quite an innovation to the congenitally conservative paper-maker, and its use was rather slow of general acceptance. So the increase in mills and output scarcely did more than keep pace with the growth of the country and its normal demand for paper. Imports still supplied a large proportion of the requirements, with the United States becoming an important competitor in the market. Not only did American mills have active agencies in Canada, but several of them already recognized the importance of our woods and water-powers, and began to establish pulp mills in the Dominion to assure themselves an adequate future supply of cheap wood-pulp. This movement started to show considerable acceleration toward the end of this period, when the rate of deple-

1. Fine horses snake logs out to yard or landing.
2. Pile of logs ready to be hauled out.
3. A giant spruce goes down, sawed close to the ground to prevent waste.
4. The hydroplane is an invaluable aid in woodlands operations.
5. A log-drivers' camp moves down-stream with the wood.
6. Thousands of cords of pulpwood await the break-up of winter.

Photos—The E. B. Eddy Co., Limited





Thousands of tons of paper and pulp are shipped by steamer.

tion of the forests in the North-eastern states began to cause alarm. The export of pulpwood was increasing rapidly and this, in turn, caused the provincial governments, who control practically all the forest domain, to give serious consideration to the situation. The result of the action taken by the provinces, particularly Ontario and Quebec, in restricting export of pulpwood, together with rapidly increasing demand for newsprint, is the theme of the fourth period in Canada's paper history.

The Fourth Epoch.

The turn of the century may be likened to the opening of the door at which Opportunity has knocked. We shall now look through that door and shortly see the great pulp and paper industry as it is to-day — the most important manufacturing industry in Canada — and how it has come to be such a tremendous factor in our national life and international economy.

In 1900, the 28 paper mills employed 2,730 people and turned out products valued at \$4,380,776, while the 25 pulp mills, with 3,177 wage-earners, produced pulp to the value of \$4,256,781. It is probable that some of these establishments were joint mills making both pulp and paper, thereby consuming their pulp as a raw material in their own paper mill. The figures also do not indicate the amount of pulp used in other Canadian paper mills. A great improvement has taken place since then in methods of taking our industrial census.

The statistics for 1938 are only just available from the Bureau of Statistics, Department of Trade and Commerce at Ottawa. This report shows the value of the gross production of the pulp and paper industry to be \$183,897,503. While this was an increase of 49 per cent from the low point of the depression in 1933, it was somewhat less in value than the peak year of 1929. The volume, due to the drop in consumption of newsprint in the United

States, was less than the 1937 all-time record; the decrease in value being due to the large drop in prices obtained for pulp and paper. As compared with 1900, we find that the number of employees in 1938 was 30,943 and they received \$42,619,311. In 1900, the annual output per employee was worth \$1,383, and the average wage was \$380; in 1938 the average workman produced goods worth \$5,943, and received an average wage of \$1,397—an increase in product value of 4.29 times and earnings of 3.68 times. In 1900, he produced 3.64 times the amount of his wage and in 1938 his output was worth 4.27 times his wage. This comparison indicates the results of research in the development of process and equipment.

Comparing the principal statistics of the pulp and paper industry of 1900, with the figures for 1938, as furnished us by the Bureau of Statistics, we find:

	1900	1938
Establishments	53	99
Employees	6,236	30,943
Capital		
Invested	\$19,066,379	\$594,908,222
Salaries and Wages	2,370,745	42,619,311
Cost of Materials	3,634,857	71,062,580
Gross Value of Production	8,627,557	183,897,503

We might even glance back for a moment at 1880, when there were only 5 pulp mills, with 68 employees and an output of wood-pulp valued at \$63,000. In that year there were also 36 paper mills, employing 1,250 and producing \$2,446,693 worth of paper products.

From 1900 to 1910 the capital invested nearly doubled, mills increased in size rather than in number to over seventy, the value of production went up nine-fold and the number of employees increased 50 per cent.

Three Important Events

The three outstanding events of the years from 1910 to the present were: the restriction of raw pulpwood export from Crown lands, the Great War and the depression of the present decade.

The successful introduction of wood-pulp for paper manufacture introduced profound changes in the operating technology and very serious economic problems.



Hydro-electric power plants on the Gatineau River. The paper industry is Canada's biggest power user.

Photos—Canadian International Paper Company

The relative cheapness and accessibility of wood as raw material resulted in a considerable investment of American capital in timber limits and pulp mills in Canada. Practically all this pulpwood timber was on land owned by the people — Crown land — and administered by the provincial governments. A firm seeking the right to cut the wood asks for a certain area to be opened for tender and such firm is charged a ground rent at a nominal rate per square mile and a stumpage fee of so much a cord for wood as cut. The licence is usually for one year and is renewable, though the ground rent, stumpage dues, and cutting regulations may be changed as conditions require. The sale of such wood has been for many years our principal source of provincial revenue, bringing millions of dollars annually into government coffers. Obviously, the manufacture of this wood into pulp and paper not only increased the value of the wood from three to six times, or more, but also gave much additional employment. In the closing year of the last century, Ontario determined to retain these benefits at home by placing an embargo on the export of unmanufactured pulpwood cut on Crown lands. Wood from the Prairie Provinces was placed under

Electric generators in another plant, a few miles up-river from the plants shown above.





The cafeteria serves
a drink, a snack or
a meal.



This is how inter-
folded paper towels
are put up.



The festoon dryer in
a paper coating
plant.

Embossing and packaging paper napkins.



Winding and wrapping toilet paper rolls.



Paper mills have well-equipped machine shops.





Bulletin boards are prime factors in accident prevention.

similar restriction in 1907. In Quebec, from which most pulpwood was exported, the question became politically acute in 1910. The Premier, Sir Lomer Gouin, who was very close to Sir Wilfrid Laurier, and like him foresaw a tremendous industrial development, acted to accelerate this movement by bringing into effect legislation to prohibit the export of pulpwood from Crown lands of the province. Such legislation does not affect wood from privately owned land, the export of which in 1925 amounted to 1,423,502 cords. In 1938 Canada exported 1,752,259 cords of pulpwood, of which several hundred thousand cords went to Germany. Canadian mills also obtain as much as 35 per cent of their pulpwood requirements from farmers, settlers, and other private owners.

The result of these embargoes was to increase rapidly the rate of industrial immigration of American capital to Canada to establish pulp and paper mills. It was not the only factor, however; Canada's huge water-powers, easily developed at strategic points for paper mills on rivers down which the wood could be cheaply driven, were quickly appreciated by manufacturers and promoters. The latter, particularly, were able to visualize and present such attractive prospects to the investing public that the financing of the new industry was not difficult. In fact, the impetus became so great that construction continued to advance beyond the rate of consumption, and a period of over-capacity occurred.

The declaration of war in 1914, which involved the world in one of its worst catastrophes, found Canada with 80 mills employing 15,000, with \$130,000,000 capital, and a production worth about \$100,000,000. During the war the demand for pulp and paper, particularly newsprint, became enormous; the already rapid rate of new construction increased and the governments of both Canada and the

United States investigated the cost of newsprint manufacture. Canada appointed a paper controller in 1918 who fixed the price of newsprint in the Dominion. Meanwhile, the export of pulp and paper had increased to a point where domestic consumption of newsprint was not a big enough factor to have a serious effect on the prosperity of mills. But there was a serious shortage of labour, fuel, and other materials that at times made operation very difficult and uncertain.

During the war years, the investment in mills nearly doubled, as did also the number of employees and the value of products. The number of new mills did not increase so much, but their size and cost became much greater per unit and extensive additions were made to existing plants. The capital invested in the average mill of 1900 was only \$360,000; in 1917 it was \$4,000,000, while the newer plants represent more than \$10,000,000.

Following the war there was a set-back, but it did not come all at once. The number of mills in operation increased to 100 in 1919, and stayed at that figure for two years. Those two years saw the value of production rise to a new peak in 1920, then in 1921 slump the whole previous year's gain, back to the 1919 level. Invested capital, however, rose with just an easing-off in 1922 and 1925. Mills in operation also increased again to a maximum of 108 in 1924 and the value of production recovered a large part of the loss. In fact, were it not for the greatly inflated prices of 1921, the production curve would have shown a normal slope and probably some, at least, of the investment that led to later over-capacity would have been avoided. Ridiculously high prices for pulp and paper, particularly newsprint, led to an orgy of promotion and a scramble for timber limits. The terms on which these limits were acquired called for the erection of mills and the provincial governments, foolishly perhaps, insisted on construction of plants that came to completion just at the unpsychological moment of the break of the next boom of 1929.

Canada Takes Lead in Newsprint

And so we come to the beginning of the present decade. From 1922 to 1929 there had been a steady recovery in employment, wages, and value of production at rather nominal prices. In 1926, Canada became the world's largest pro-

CANADA'S PULP & PAPER INDUSTRY

Canada's Paper Industry To-day

ducer of newsprint, passing the United States and continuing to forge steadily ahead. The rate of growth of the newsprint industry in Canada — other branches were far more cautious and conservative — was indeed rapid, but not much out of line with increase in consumption up to about 1928. But when demand began to recede, several large projects were already too far along to halt. An important exception to this was the Ontario Paper Company's plan for the mill at Baie Comeau, which only came into production in 1938. In any event, new mills were built. Then the slump came. Production fell off and prices dropped, so that less efficient mills were closed and operating mills increased their shifts from three to four in order to find work for men whose machines were idle. It was impossible to make ends meet, and mill after mill went into receivership.

But this industry is again on the path to recovery. Its recuperation is due to a large extent to improvement in processes resulting from the application of research to manufacturing problems and to the development of new products.

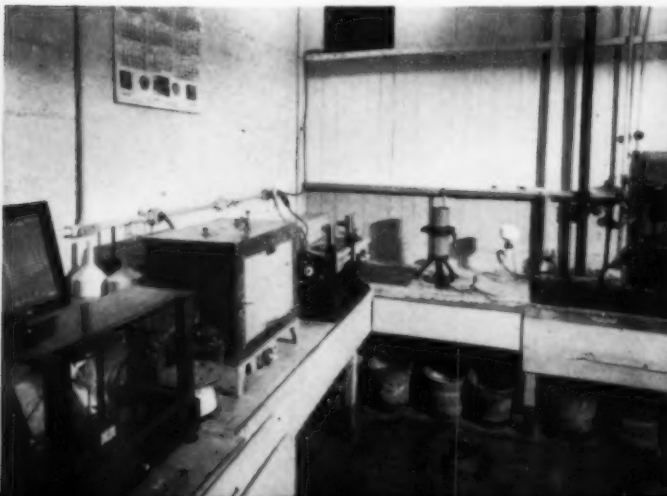
Measured in quantity, the pulp and paper industry in Canada is immensely bigger than the previous peak in 1929, but values, because of lower unit prices, are uniformly lower. Comparing the 1937 peak with 1929, pulpwood output was up 7.1 per cent, wood-pulp output was up 11.5 per cent, paper production was up 19.1 per cent, although pulp exports were down 9.2 per cent and employment unfortunately lagged 12.1 per cent. Most increases would be found slightly less for 1938, but we are comparing recent peak years. Compared with the low point of 1933, however, employment had increased 25 per cent, salaries and wages 50.2 per cent, pulp output 50.5 per cent, paper production 57.4 per cent, pulpwood exports 72.0 per cent, pulp exports value 33.8 per cent, paper exports value 53.1 per cent, gross value of products 53.2 per cent, and contribution of the industry towards a favourable trade balance 50.8 per cent. It is this trade-balancing effect of paper exports, together with the huge amounts spent for wages, materials and services, that makes the

CANADIAN INDUSTRIES, ACCORDING TO GROSS VALUE OF PRODUCTION, 1937

Industries	Gross Value of Production		Capital Invested		Salaries and Wages		Employment		Net Value of Production	
	\$'000	Rank	\$'000	Rank	\$'000	Rank	No.	Rank	\$'000	Rank
Non-ferrous metal smelting and refining.....	318,278	1	162,696	2	17,990	9	11,570	21	101,807	2
Pulp and Paper.....	226,244	2	570,352	1	48,757	1	33,205	2	106,002	1
Slaughtering and meat packing.....	181,419	3	65,411	10	17,085	10	13,070	15	31,955	12
Automobiles.....	134,810	4	57,996	16	22,138	6	14,946	12	41,272	7
Flour and feed mills.....	133,634	5	56,280	18	5,877	34	5,803	31	20,854	23
Butter and cheese.....	124,935	6	60,001	14	15,699	15	16,583	11	31,990	11
Sawmills.....	104,849	7	90,405	6	27,173	3	33,917	1	46,727	5
Electrical apparatus and supplies.....	98,841	8	97,187	3	26,291	4	21,706	3	55,815	3
Petroleum products.....	98,454	9	64,280	12	8,246	26	5,137	34	13,602	31
Railway rolling stock.....	93,854	10	88,426	7	29,187	2	21,496	4	35,573	8

A well-equipped departmental testing laboratory.

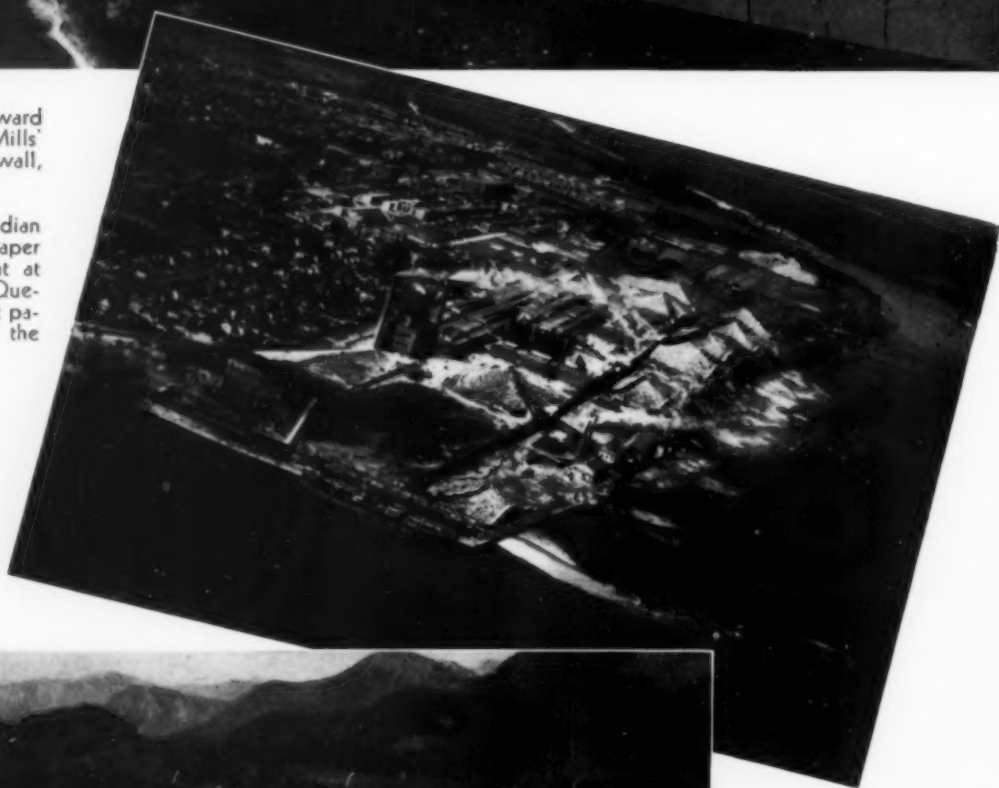
The first-aid room of a paper mill is an important department.



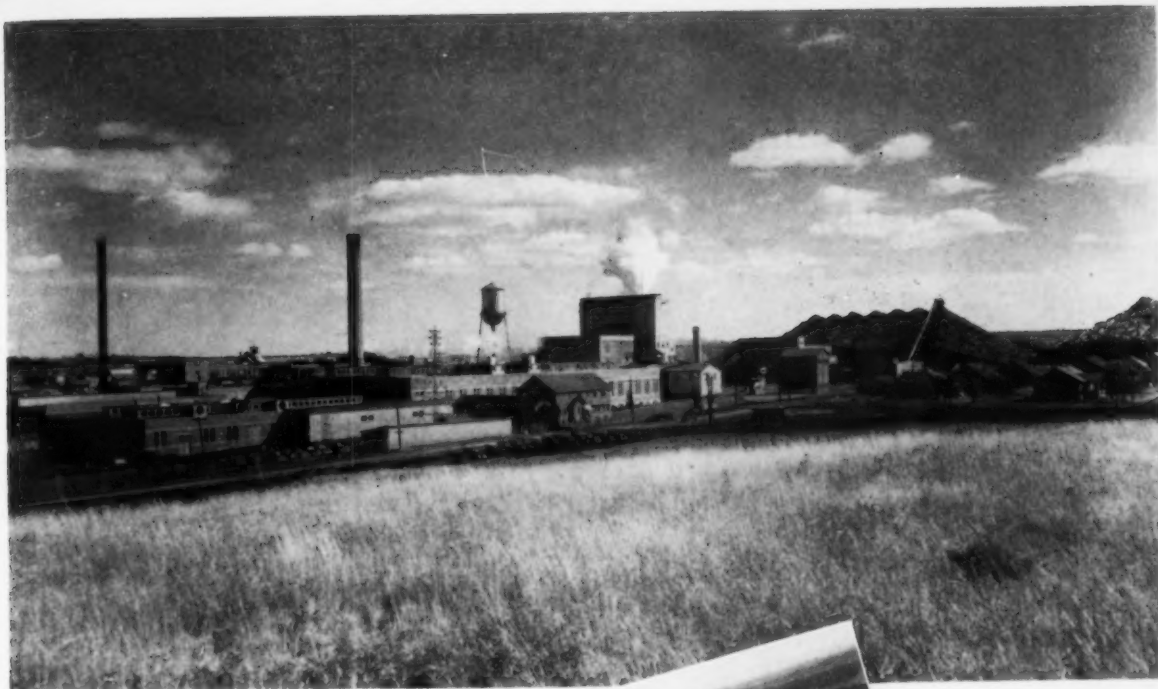


Above: — Howard Smith Paper Mills' plant at Cornwall, Ontario.

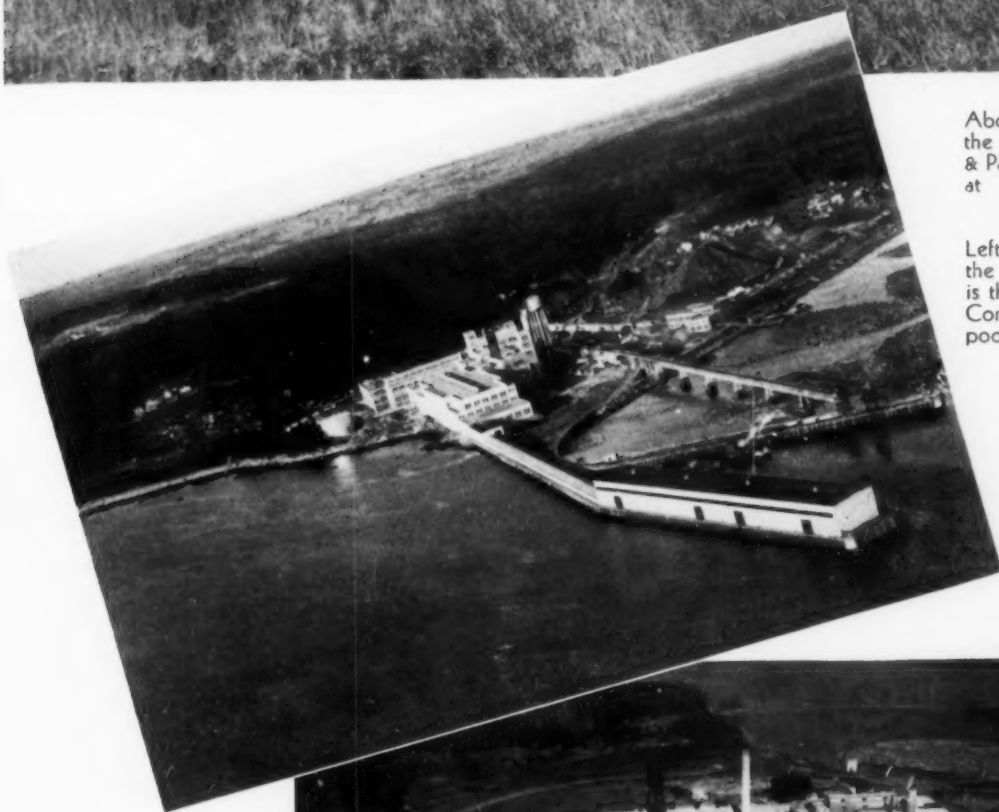
Right: — Canadian International Paper Company's plant at Three Rivers, Quebec, the biggest paper mill in the world.



Left: — An excellent example of a modern mill community is provided by the Powell River Company at Powell River, B.C.



Above: — Plant of the Bathurst Power & Paper Co. located at Bathurst, New Brunswick.



Left: — Alongside the Atlantic Ocean is the Mersey Paper Company, at Liverpool, Nova Scotia.

Right: — A prairie newsprint mill. Manitoba Paper Company at Pine Falls, Manitoba.



pulp and paper industry so essential to the welfare and prosperity of the Dominion and entitles it to a degree of consideration by the public that is often lacking also on the part of some critics. The relative position of this industry with respect to other important industries in Canada is shown in the table on page 277. In 1937 it held first place on every score but two and

it came second in these — the non-ferrous mining and smelting industry has a larger gross value of production, and saw mills employed 612 more workers. Scoring these standings by rank, the pulp and paper industry leads by a good margin.

The principal statistics of the industry for 1938 are summarized by the Bureau of Statistics as follows:

PRINCIPAL STATISTICS, BY PROVINCES, 1938					
	CANADA	Quebec	Ontario	British Columbia	(1) Other Provinces
Establishments.....No.	99	44	37	6	12
Pulp mills.....No.	27	10	8	2	7
Pulp and paper mills.....No.	48	25	15	3	5
Paper mills.....No.	24	9	14	1	—
Capital employed.....\$	594,908,222	310,894,280	174,219,617	47,437,265	62,357,060
Total employees.....No.	30,943	15,493	9,637	2,416	3,397
Salaries and wages.....\$	42,619,311	20,488,451	14,280,151	3,300,710	4,549,999
Fuel used.....\$	7,037,098	2,433,217	2,800,258	592,347	1,211,276
Electricity purchased.....\$	16,763,639	11,114,225	3,508,132	46,088	2,095,194
Power employed.....H.P.	1,886,944	1,017,558	516,208	129,970	223,208
(2) Pulp-making materials and supplies.....\$	49,470,732	24,723,274	14,865,757	2,630,096	7,251,605
(3) Pulp made.....\$	87,897,148	44,220,224	25,821,023	4,456,691	13,399,210
(4) Paper-making materials and supplies.....\$	77,020,847	38,926,554	26,704,437	4,007,584	7,382,272
Paper made.....\$	151,650,065	74,533,867	52,282,508	10,105,788	14,727,902
(5) Total value of materials and supplies.....\$	71,062,580	34,195,721	24,619,850	3,871,231	8,375,778
(6) Gross value of products...\$	183,897,503	88,990,115	60,946,197	12,004,843	21,956,348
(7) Net value of products....\$	89,034,186	41,246,952	30,017,957	7,495,177	10,274,100

(1) Nova Scotia, New Brunswick and Manitoba.

(2) The values which go to make up the total "Pulp-making materials and supplies" include pulpwood, chemicals, pulpstones and miscellaneous materials and supplies used in the manufacture of pulp.

(3) The value of "Pulp made" represents the sum of the values of pulp made for sale in Canada, pulp made for export and pulp made in combined pulp and paper mills or their own use in making paper.

(4) The values which go to make up the total "Paper-making materials and supplies" include pulp (of their own manufacture) used by combined pulp and paper mills, purchased pulp, other fibre and stock, chemicals and miscellaneous materials and supplies used in the manufacture of paper.

(5) The values which go to make up "Total value of materials and supplies" are equal to the sum of "Pulp-making materials" and "Paper-making materials less the pulp (of their own manufacture) used by combined pulp and paper mills in the manufacture of paper.

(6) "Gross value of products" represents the sum of the values of pulp made for sale in Canada, pulp made for export and paper manufactured. It does not include pulpwood, nor the pulp made in combined pulp and paper mills for their own use in making paper.

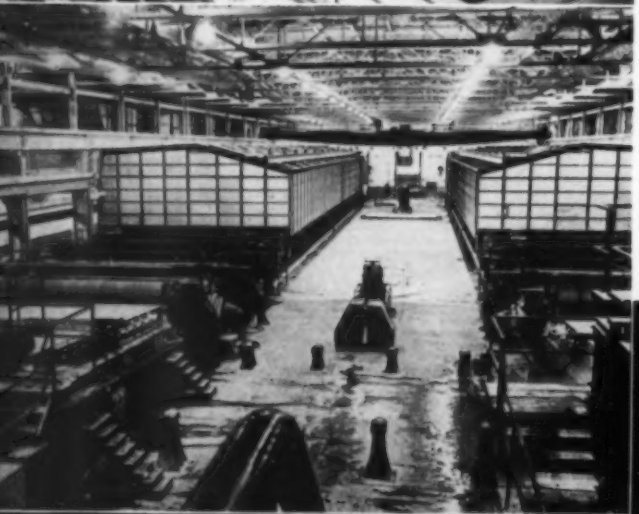
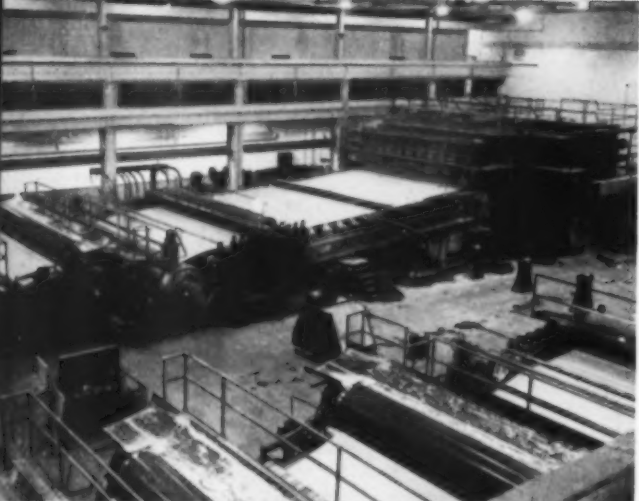
(7) The "Net value of production" is compiled by subtracting the total value of materials and supplies, fuel and electricity from the gross value of products.

Such a table, however, does not begin to tell the whole story or present the real picture. For that, one must first look across the Dominion, and then about one's own home and office. In the first case, one sees and hears the humming of mills in British Columbia, Manitoba, Ontario, Quebec, New Brunswick, and Nova Scotia, men changing shifts three or four times a day; pleasant homes with gardens; attractive towns with churches,

schools, playgrounds, and even golf courses; trains and boats bringing in supplies and taking out pulp and paper; thousands of men in the forests of Canada, cutting, trimming, and hauling out with horses, tractors, trucks and steam tackle, the wood that feeds the mills. One also sees, in the cities and towns, the factories making a multitude of paper products and presses printing our newspapers, magazines and books. Closer at hand, and every day, we



A sample of Canada's extensive pulpwood resources; the people own over ninety per cent of forest land.



see and use so many things made possible by cellulose, the basis of paper, that it would be difficult to enumerate them. There is paper itself in many forms — reading matter, stationery, boxes, wrapping, tissue, towels, napkins, handkerchiefs, lamp-shades, window-shades, toe caps and heel counters in our shoes, cigarette papers, mailing tubes, wall boards, roofing paper, insulating paper, etc., etc.; and, from cellulose, rayon fabrics and articles, cellophane, absorbent gauze, molded ware, etc.

The Pulp and Paper Association

The success of most industries is based on co-operation among its members, usually accomplished by active participation in a trade organization. The Canadian Pulp and Paper Association is the trade organization of the manufacturers of pulp and paper in Canada. The Association was established in 1913 and at the present time comprises practically all the pulp and paper companies in the Dominion.

The Association functions in many ways for the benefit of its members. Among its activities are the collection and dissemination of trade statistics, the establishment of a recognized body of trade customs, the encouragement of the use of domestic

1. After pressing and drying, the paper gets a smooth finish and is then slit and wound.
2. The fourdrinier part of the paper machine, where sulphite and groundwood fibres are blended into the sheet of paper.
3. The paper machines in Canada's newest paper mill will make nearly 400 tons a day.
4. Fine papers are inspected, sorted, counted, and packed.
5. This chemist is preparing to make a microscopical examination of paper.



products as opposed to imported goods, and the handling of questions relating to the tariff, Dominion and Provincial legislation, technical research, forest management and operation, and other matters affecting the pulp and paper industry.

For matters relating to particular branches of the industry there are various Sections, each of which has its own chairman and functions independently in its own field. There are also a Technical Section made up of the leading technical men in the mills, the object of which is the promotion of efficiency in the technique of the industry, and a Woodlands Section made up of the leading forestry experts who co-operate for the solution of their particular problems. At the head office of the Association is a Secretary-forester who acts as liaison officer in this field and devotes his time to forestry matters.

The offices of the Association are in the Pulp and Paper Research Institute at Montreal. This building was erected by the Association to provide accommodation for the Pulp and Paper Division of the Forest Products Laboratories of Canada, for the Chair of Industrial and Cellulose Chemistry at McGill University and as head-quarters of the Association. The building comprises up-to-date cellulose research laboratories and a fully equipped

1. Careful handling is important if rolls are to reach the customer in good condition. ²
2. Putting final touches on good wrapping. ³
3. The finest papers are made from rags, carefully sorted before being cooked and bleached. ⁴
4. Skilled hands count each ream.

No. 3—Photo: Howard Smith Paper Mills Limited

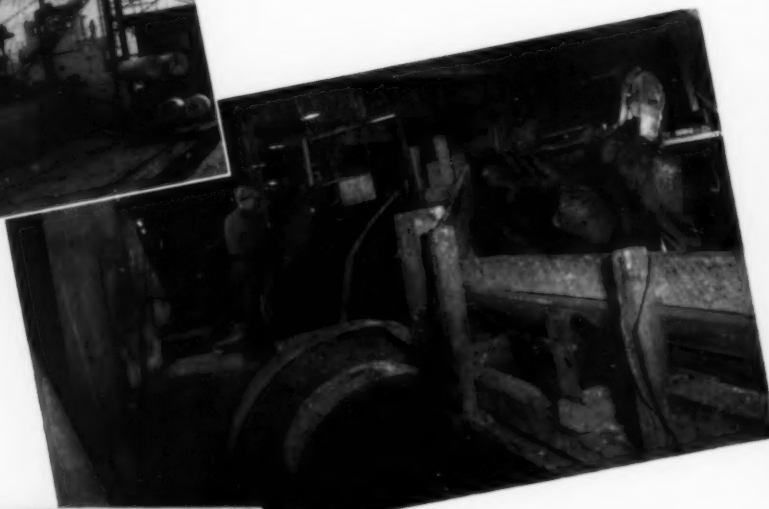




1. Much pulp and paper goes overseas.

1

2. Wood to be cooked is chipped into small pieces.



2



3. Most of Canada's paper and pulp is shipped by rail.

3

4. Thousands of cords must be piled for use during the winter.



4



5. Charging wood to the grinder is a man's job.



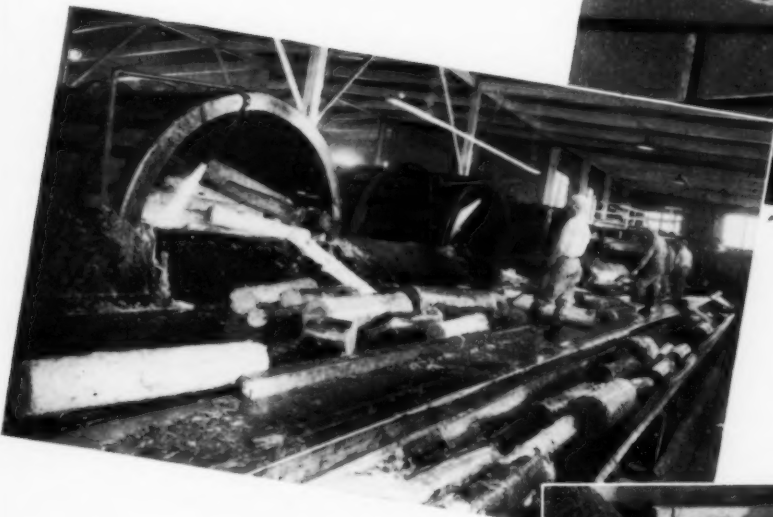
6. These logs go safely past a waterfall.

5

1. A winter's supply of pulp-wood.



1



2

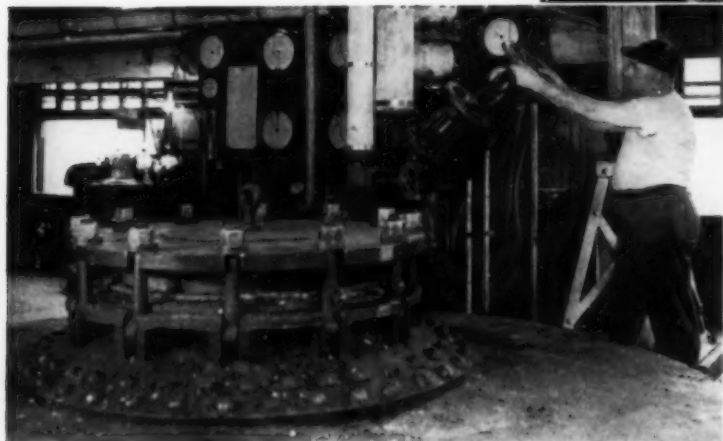
2. Wood must be clean to make clean paper.

3. A bin full of chips, ready for the digester.

Photo — Canadian National Railways



3



4

4. Top of digester and control instruments.

5

6

5. From the boom the wood is hauled up the jack ladder to the mill.

6. Busy saws cut through the logs like sticks of cheese.





Loading barges for inland waters.

experimental pulp and paper mill and is unique from the fact that it represents a joint effort on the part of the Government, the University and the Industry to work towards the solution of problems arising from the pulp and paper industry. A large staff of highly qualified workers is engaged constantly on investigations into problems submitted by the mills and on problems of research and the results of the work done are made available to all members of the Association.

The laboratories of the Pulp and Paper Division of the Forest Products Laboratories of Canada are fully equipped for chemical research and pulp and paper testing. The equipment includes an experimental mill, which is used both to test the suitability of raw materials and for the investigation of processes and machinery.

The Association accomplished something outstanding in co-operation with the Technical Association of the (U. S.) Pulp and Paper Industry in the production of a five-volume text book. On the basis of these books the Association fostered the establishment of a correspondence course in the technology of paper-making.

Results of Research

The secrets of cellulose are by no means all known, but great advances have been made in the recovery of this most

abundant plant material, particularly from wood, and in its conversion to a multitude of useful articles. That we are only on the threshold of a tremendous development, limited probably only by our ability to grow trees and other sources of cellulose, is indicated by a recent article by G. Ward Price in the London "Daily Mail". Mr. Price, who was attending a large industrial exhibition in Germany, is reported by *World's Paper Trade Review* as describing his observations and impressions as follows:

"Science is creating a strange new world. The materials in it will look like those we use to-day, but their origins will be entirely different. Coal, chalk, water, air, and, above all, cellulose or wood-pulp are the sources from which the ingenuity of research chemists now provide rubber, glass, plastic materials, textiles, and new substances which have all the good qualities and none of the disadvantages of natural products. To talk of this as the Steel Age will soon be out of date. The world is entering on the 'Age of Chemical Substitutes'. A woman expert who conducted Mr. Ward Price round the textile department of the exhibition observed that the prediction that mankind would be dressed by the forests of Canada was coming true. Pointing to muslins for women and lengths of cloth for men's suits, she told Mr. Ward Price that these were made entirely of wood-pulp without any admixture of other material, and 'are better in every way than similar fabrics of wool or cotton.' The extent of which cellulose has entered into the equipment and decoration of a railway coach on exhibition impressed Mr. Ward Price. 'The 'horsehair', with which the seats are stuffed,' he notes, 'is wood-pulp in one form; the material that covers them is made of that substance differently treated; so are the window-curtains, washed 20 times but still smooth in texture; door handles and water-pipes are of a plastic product whose basis is cellulose; the same material is a component of paints and varnishes, and provides alike the carpet on the floor and the panelling on the walls.'

A truly amazing variety of articles in which cellulose is the basic, or one of the most important, elements was noted. "A scientist dressed in a wood-pulp suit and wearing a wood-pulp tie opened a wood-

pulp sack covered with wood-pulp cellophane and in a spoon made of wood-pulp handed me some wood-pulp sugar to taste, Mr. Ward Price writes. A hundred tons of dry wood, he said, yield 66 tons of raw sugar, from which 20 tons of grape-sugar can be refined. More striking still was the next exhibit, which looked like an ordinary box of fancy chocolates, in various shapes, topped with sugar. The box, its transparent paper covering and the chocolates themselves were all made from wood-pulp.

And all this is in addition to the many useful forms of paper and board that are familiar to us.

Lord Rothermere recently said he would not be surprised to see railway rails made of paper. What other possibilities there are will be discovered one day, if we but give our researchers the support and encouragement they deserve, and keep the forest green.

An Afterword

Now, in September 1939, another world war has engulfed us. What effect it will have on Canada's pulp and paper industry cannot be foretold. The situation differs greatly from 1914. Twenty-five years ago an era of great expansion had begun and there was a very close balance between production and consumption that continued for a decade after the war was over. Now there is a considerable margin of manufacturing capacity over demand for the product. This, however, is more true of paper than of pulp, in which there is a definite shortage on this continent. Countries dependent to any considerable extent on European supplies of paper, board and wood-pulp are already feeling the pinch. Canadian mills are picking up this load in so far as production and shipping facilities permit, and the industry in both Canada and the United States has been cautioned and urged by its trade associations to avoid any action as to hoarding or price movement that might lead to panic atmosphere. There will doubtless be a shortage in some grades, but calm and careful adjustment can make such effective use of available facilities as to avoid the stampede and skyrocket prices, and the succeeding slump, that occurred before. The pulp and paper industry realizes that we are at war and the Canadian Pulp & Paper Association has pledged its loyal support and co-

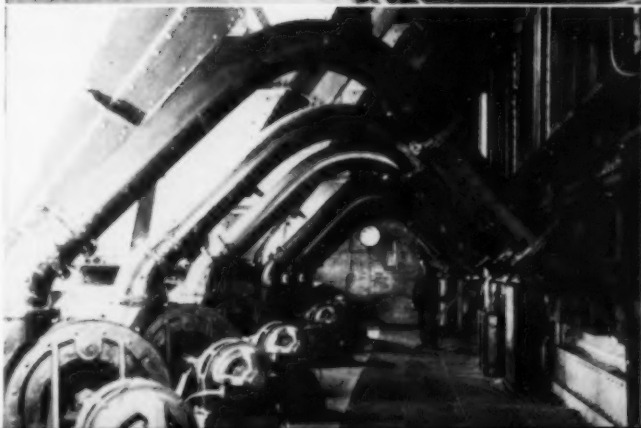
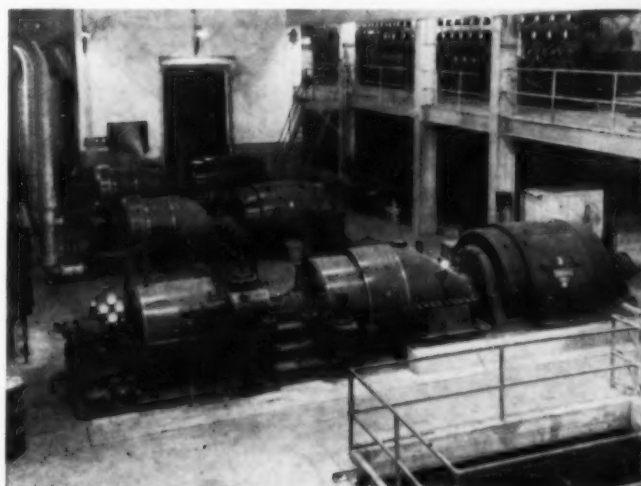
operation to the Government in this emergency.

The pulp and paper industry can face the future with confidence. It is an essential industry because its products are necessities of modern life, and it will continue to expand and develop. Some new mills will be built and present plants will be improved so as to increase both quantity and quality of output. Research will suggest new by-products, so that the yeast and vanilla essence now being made from pulp mill waste liquors will prove to be only the fore-runners of a long list of important new materials whose manufacture will add to Canada's wealth and increase the employment of her people.

Grateful acknowledgment for the use of pictures is made to The E. B. Eddy Co., Limited; Canadian International Paper Company; Howard Smith Paper Mills Limited; Price Bros. & Co., Limited; Canadian National Railways; Pulp & Paper Magazine of Canada.

The steam turbine is a versatile machine; it converts heat energy into electricity and delivers surplus steam for cooking wood and drying paper.

Steam is required in large amounts. Here we see blowers charging powdered coal to boiler furnaces.



Lower Right—Photo: Canadian National Railways.





Bringing wild rice in sacks to the processing grounds.

WILD RICE IN CANADA*

by TREVOR LLOYD

Photographs by B. W. Cartwright of Ducks (Unlimited) Canada.

WILD rice is in great demand at fashionable restaurants in Canada and the United States. In New York it retails for a dollar a pound, a high price made necessary by its scarcity and the laborious processes needed to prepare it for human consumption. Yet this modern restaurant luxury has been a staple food of the Indians for generations, and almost a hundred and fifty years ago, Alexander Henry, the explorer, wrote that "Without large quantities of wild rice (obtained from the Lake of the Woods) the voyage beyond the Saskatchewan River could not have been prosecuted to its completion".

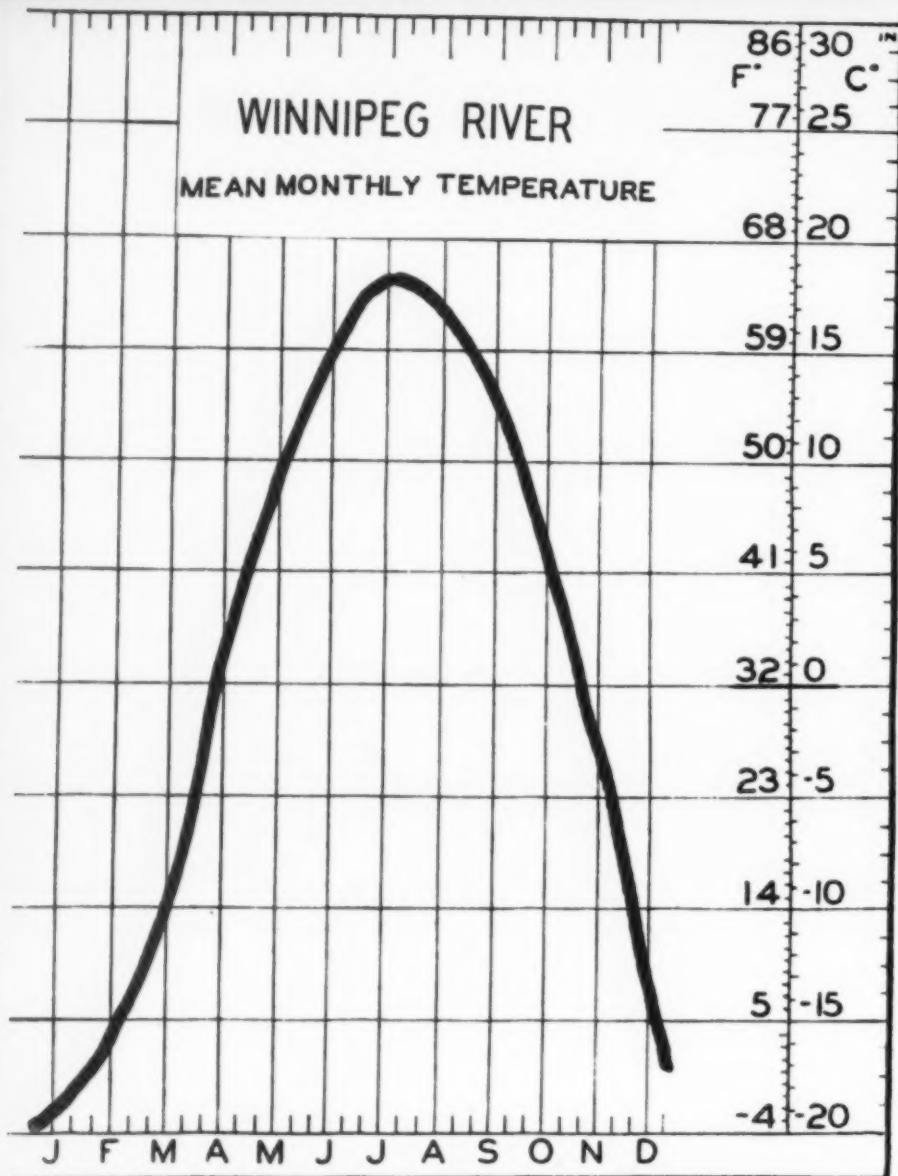
Harvesting of the rice was carried on in those days in almost the same way as it is to-day. Indians living within reach of rice growing areas occupy some of the time between the end of the berry-picking season and the opening of the trapping season with rice harvesting, both for their own use and for sale to white men.

Although the wild rice plant, in one or another of its forms grows over a wide area in Eastern North America, the conditions for its successful growth are sufficiently strict to limit its commercial production to a few regions. The best known of these in Western Canada is Lac du Bois,

Top left:—Sowing wild rice broadcast.

Bottom left:—Wild rice harvesting machine developed by Williams and Holliday.

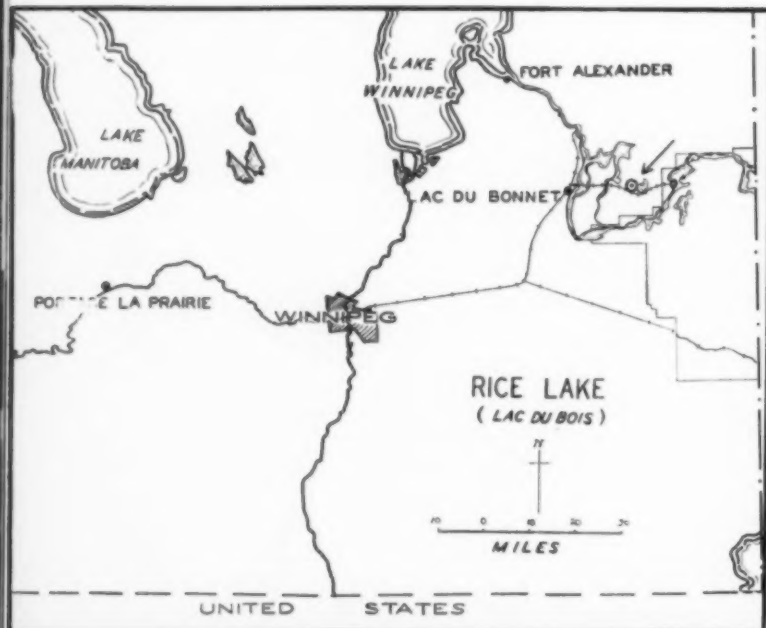
**Acknowledgment is made of the assistance of Mr. B. W. Cartwright, Mr. H. B. Williams and Mrs. Joan Glassco Lloyd.*



The Winnipeg River area has an extreme continental climate. The average temperature ranges from -4°F . in January to 65°F . in July.

Lower Left:—

Lac du Bois (indicated by arrow) in relation to railways to Winnipeg and Eastern Canada.





Winnipeg Hydro Power plant at Pointe du Bois, Manitoba. Rice Lake appears in centre background.

locally known as Rice Lake. It is a small lake of approximately 500 acres about twenty miles from the Ontario boundary and ninety miles from the United States' line. Situated on the pre-Cambrian shield and surrounded by rock and forest and muskeg, it would be almost inaccessible but for the City of Winnipeg Hydro Electric System tramway which passes near its southern shore.

Lac du Bois appears to possess almost ideal conditions for wild rice growth. It is shallow, neutral or slightly acid, has a thick layer of ooze at the bottom and is not subject to drying up or serious flooding. The species of rice growing in Manitoba is *Zizania aquatica* which grows to a height of from five to eight feet. It is an annual, requiring new seeds every year. In autumn the ripe seeds fall into the water and are soon buried in the muddy bottom, where they remain throughout the winter. When the lake freezes the rice plants are locked in the ice until the spring when the lake breaks up. The ice rising with the spring

freshets, tears the rice plants from the lake bottom. In this way the rice beds are cleared each year and the disturbance of the mud assists in the germination of the seeds.

Harvesting

The traditional methods of harvesting followed by the Ojibway Indians are simple rather than efficient. The rice at Lac du Bois is ready for harvesting during the first two weeks of September. By this time the Indians, men, women and children, have reached their camping grounds from the Fort Alexander Indian Reserve, near the mouth of the Winnipeg River. This journey is by no means easy as it involves perhaps fifty miles of paddling up-stream along a river always difficult to navigate and now dotted with the dams of power sites. For a part of the way the Indians follow the route of the old fur brigades and of the Wolseley expedition of 1869.

The harvest is repeated three times at about ten day intervals as the rice does not



1



2



3



4



5

(1) Holding up wild rice plant to show root system.

(2) Wild rice seed which is kept continuously wet.

(3) Specimens of wild rice *Zizania Aquatica*.

(4) Wild rice is kept continuously wet until required for shipment.

(5) Typical Indian wild rice camp.



1



2



3



4

(1) Close-up of concrete pots (formerly earthenware of Indian make) in which the wild rice is "danced".

(2)-(3) Views of "dancing" and winnowing wild rice.

(4) Indian girls of the Ojibwa tribe engaged in the wild rice harvest at Lac du Bois, Manitoba.

(5) Old Indian woman winnowing wild rice in birch-bark tray.



5



(1) Indian girl with winnowing tray made of birch-bark at Williams wild rice camp.

(2) Indian woman demonstrating how winnowing wild rice has been carried on for generations at Lac du Bois.

all ripen at once. Two Indians man a canoe. The bowman paddles slowly through the high rice stems. The man in the stern has two sticks. With one he pulls the stems over the side and with the other taps the heads so as to knock the seeds into the canoe. By alternately pulling the rice from the right and left about one bushel of seeds is obtained in an hour. The seeds are protected by a hard sheath almost three-quarters of an inch long and subsequent processes are designed to remove it.

The first stage is to heat the rice, to dry it without burning it. Formerly, the usual method was to place it on racks of willow with a slow burning fire about three feet beneath. This gave the grain a smoky taste and out of deference to the white man's palate, the heating is now done in sheet iron troughs. Continuous stirring is necessary to prevent burning and this laborious work is the special work of the older women. On completion of this "parching" process, the outer husk has to be loosened. Traditionally this was done by the younger men and boys who "danced" on the rice placed in clay hollows in the ground. To-day they do it in concrete troughs about eighteen inches in diameter and wear rubber-soled shoes in place of the more colourful but less hygienic moccasins. Fifteen minutes of "dancing" is sufficient at one time for even the most energetic men. They support themselves by holding on to a wooden post or "bucking beam" and shuffle the feet by swinging the knees and hips. The whole body moves in a sinuous way not unlike that of the modern "jitter-bug". "Dancing" the rice has loosened the husks and they are separated from the rice grains by winnowing. This is done by women and girls who toss the rice in shallow birch-bark dishes so that the wind may remove the chaff.

The whole process is most picturesque. The girls and women wear brightly coloured clothes and even the men are not above having a dash of colour in their shirts. Families are grouped in clearings in the "bush", with the winnowers on higher ground or rocky outcrops where the wind is strongest. In the background is the lake filled with tall waving rice plants.

The methods followed by the Indians were far too casual to be of commercial value. The crop was always uncertain and the methods of gathering it were wasteful. During the past twenty years attempts have been made, latterly with a good deal of success, to harvest the rice thoroughly, process it more efficiently, and at the same time ensure a good crop of rice every autumn. 1

Modern Methods of Harvesting

Most of the wild rice harvested in Manitoba is still done by the Indians, but at Lac du Bois, they work side by side with a modern harvesting machine. This is the invention of Holliday and Williams. It consists of a punt about thirty-six feet long, propelled by paddles driven by an automobile engine. On either side of the punt are "outriggers" in the form of wire meshed cages open towards the front. Revolving arms press the rice stems against the cages and the seed falls into the moving trays which carry the rice into the punt where it is bagged. The Indian method of harvesting probably loses about one-half of the rice. The machine collects about ninety per cent, knocking sufficient into the water to ensure a good crop next year. Williams has discovered that the revolving paddles stir up the ooze and improve the germina- 2

(1) Indian method of harvesting wild rice with two short sticks.

(2) Dumping the wild rice after parching.

(3) Old Indian woman (Ojibwa) stirring up wild rice during parching process to prevent burning.

(4) Parching the wild rice.

(5) Old Indian woman (Ojibwa) winnowing wild rice. 4





Modern revolving drums loosen the sheath without damaging the rice kernels.

tion of the seeds in the following season, and the punt is now used as an under-water cultivator. From the harvester the bags of rice are taken to the parching troughs. In place of the "dancing" as done by the Indians, the rice is placed in revolving drums containing sets of wooden pegs. These loosen the sheath without damaging the kernel. Winnowing is done in fanning mills and after careful screening the rice is bagged for shipment. It reaches the railroad at Lac du Bonnet over the Winnipeg Hydro tramway, itself one of the wonders of the West, because of its innumerable curves made necessary to avoid large rock outcrops, and the fabulous amount of gravel poured into the yawning muskeg over which the tracks must pass.

Production of Wild Rice

Many attempts have been made to transplant wild rice, but they have fre-

quently failed. This is, in part, due to the need for non-alkaline or slightly acid water not more than five feet deep, in a lake with a deep ooze bottom. Undoubtedly an important secondary reason has been imperfect understanding of the life-history of the plant. H. B. Williams has found that the seed is best stored in sacks submerged in water or kept moist at a temperature a few degrees above freezing. When properly packed it may be transported for long distances. The seed is planted by being broadcast — either in the autumn or in spring, but even with the most careful treatment there have been complete crop failures. This appears to be due to a rise in the water in June. At this time the plant first appears above water-level in the form of a "floating leaf". This is later followed by the main stem. If the "floating leaf" is submerged by a rise in the water-level, there will be a crop failure.

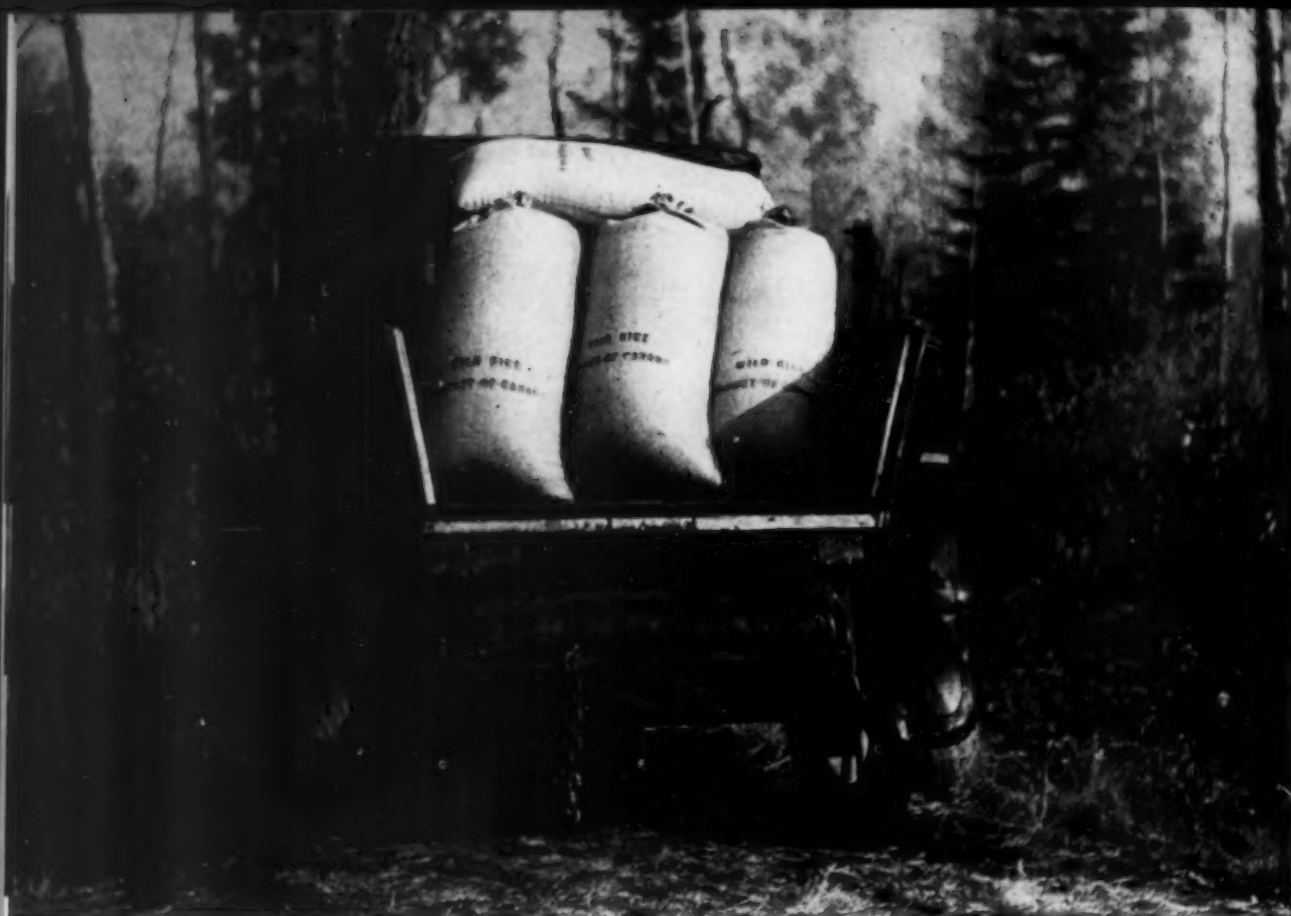


Wild rice harvesting machine and bagged rice on dock for transfer to the parching and "dancing" ground.

Holding wild rice plants to show heads and root system. Harvesting machine and wild rice beds in background.

H. B. Williams who has been cultivating and harvesting wild rice for twenty-one years.





Wild rice ready for transport to railway for shipment to United States.

Wild Rice and Ducks

Attention has recently been concentrated on wild rice in an attempt to increase the number of ducks and other wild-fowl in Canada and the United States. It is known that at least eleven species of ducks feed upon it and it is the favourite food of the mallard in the autumn. A concern interested in the increase of wild ducks, has been studying the conditions necessary for the growth of wild rice with a view to extending the area under cultivation, in northern Manitoba and Saskatchewan.

* * *

From a variety of points of view the production of wild rice is of interest. The epicure at his club cheerfully pays a high price for it as a superior stuffing for wild duck and the Indian paddles many miles along a difficult water route to secure his winter rations and a little spare cash. The

history of exploration in Western Canada would have been different without the supplies of wild rice which enabled Henry and others to press on when other supplies were low, and it is to-day an important factor in attempts to repopulate the lakes and swamps of the northern part of the West with wild-fowl. Of great human interest is the scene at Lac du Bois where the Indians, using age-old methods of harvesting and processing, work side by side with a power driven harvester and fanning mills. The "oldest inhabitant" at Lac du Bois in 1938 was Mrs. Butcher, who remembered the soldiers of Colonel Wolseley as they passed down the Winnipeg River en route for Winnipeg and Louis Riel. Her ancestors had made annual pilgrimages to Lac du Bois for centuries, and her descendants as wards of the Dominion Government will doubtless continue to do so.



Modern methods of harvesting wild rice by machinery conserve about 90 per cent of the crop.



One wing of floating harvesting machine showing how wooden slats knock off ripe rice heads into troughs.



Dressed in their best on a Sunday afternoon, these young Dukhobor women have gathered to sing for their own entertainment. Sometimes hundreds of men and women gather to sing the psalms of their ancestors. It is elemental, primitive music, woven in its own peculiar pattern; a collective acquiescence in life's melancholy, with here and there a soaring phrase of hope. And through it all is a thread of stolid persistence akin to the agrarian realism of the people.



A Dukhobor woman at her spinning wheel on a neat Saskatchewan farmstead.



A community outdoor baking oven. When the wood fire has burned low and the clay oven is the right temperature, great loaves of fresh bread are thrust inside.



MISS MARGAREUITA BLUDOVA



PETER G. MAKAROFF

THE DUKHOBORS

by J. F. C. WRIGHT

SINCE the Dukhobors came to Canada forty years ago, they have increased from more than 7,000 to about 17,000.

To-day they are no longer the impenetrable peasant sect that emigrated hastily from a hostile Russia in 1898-99. The impact of a new country has resulted in varied ways of life among the Dukhobors now in Saskatchewan and British Columbia and the few in Alberta, though attitudes inherent in the Dukhobors continue to prevail.

"Beliefs," together with a persistent urge to philosophize about everything from day-to-day farming to the possibilities of a future life, have played a peculiar part in Dukhobor history. Thus it is that frequent reference to the religious concepts of the people, and those imposed upon them from time to time by their leaders, is essential to an understanding of the Dukhobors in Canada to-day.

The Dukhobors were originally one of several peasant sects to arise in Russia about 1655, as a result of economic and religious restlessness which appeared openly after Archbishop Nikon introduced his revised prayer-book. This new book was taken as an excuse by many of the serfs of Muscovi to object strenuously to the priestly hierarchy and certain religious formulae. The Dukhobors, or "soul-wrest-

lers" as they were dubbed by the Orthodox, sought to place an unorthodox and mystical interpretation on the Scriptures, using them mainly as a cloak for the negation of all written authority. For their stubborn persistence in their heresy they suffered cruelty at the hands of Church and State officialdom.

But it was not until about 1735 that some 1,000 serfs, who had escaped from the landed estates in the broad vicinity of Moscow, managed to congregate in a frontier and fertile area of the Ukraine and there establish the first large Dukhobor settlement, a few hundred miles west of the Don Cossack domain. They believed in direct communion with God as opposed to the intervention of man-made priests. They believed in "free land" as opposed to ownership by landlords and the payment of taxes. It was not surprising that a people who had been ill-governed and exploited readily accepted the proclamations of their leaders, "that governments are not necessary, all men are equal in the sight of God."

Agricultural aptitude, personal cleanliness and honesty, and sexual fidelity were common among them. Thus they lived peaceably and prospered materially on this frontier with comparative freedom from official interference. Though the drinking

Top left:—Margareuita Bludova, 24, of the Independent Dukhobors, Blaine Lake, Saskatchewan. Miss Bludova was awarded highest aggregate at the University of Saskatchewan "Farm Girls' Judging Competition", Saskatoon, June 1935. In 1938, she won highest marks in the household science class in Saskatoon in connection with the Dominion Youth Training Plan.

Top right:—Alderman Peter G. Makaroff, K.C., of Saskatoon, first Dukhobor to enter a university. Doctors, dentists and engineers of Dukhobor lineage have since been graduated from the University of Saskatchewan.

of vodka and the eating of meat were not rigidly prohibited within the sect, abstinence was encouraged by moral coercion.

Unreasoning faith in their own patriarchal form of rulership led to the initial tragedy of Dukhobor history in 1775. When in that year their leader, Sylvan Kolesnikoff, died, they were fearful lest they be left alone to manage their affairs in accord with their "no-government" doctrines. Thus it was that Illarion Pobirehin, an eloquent and ambitious man, saw his opportunity to command others. Possessed of hypnotic personality and versed in polemical argument, he gained such a hold over his followers that soon he was able to make his power absolute by declaring himself the incarnation of Jesus Christ. Accepted as Christ in person by the Dukhobors — with the exception of a few who abandoned the sect — Pobirehin established a theocratic despotism which, ironically enough, was the complete negation of the original Dukhobor concepts of freedom and equality. He decreed a form of "communal" ownership whereby all the livestock, implements, chattels and agricultural production of his followers became his in fact. He told the faithful where to plant and when to harvest; he sold and bartered their surplus products outside the settlement.

Pobirehin's control over several thousand industrious peasants made his wealth rival that of the orthodox landlords. And in place of overseers and priests, he substituted a two-in-one hierarchy of twenty-four elders whose duty it was to carry out his orders. Arrogant and boastful in settling affairs within the sect, Pobirehin's power rapidly went to his head and he soon found his dominance of the Dukhobor communities not sufficient to satisfy him. Casting about to extend his jurisdiction, he came in conflict with authorities of the Russian Government who charged him with "posing as Tsar." His trial resulted in sentence to Siberia where with his wife and children he was sent in exile, together with several of his "twelve apostles and twelve death-bearing angels."

Pobirehin's ambitions had given Tsarist officialdom an excuse to examine Dukhobor affairs as a whole; it was an opportunity to break up the settlement, and, as a result, most of the sectarians were scattered by government decree. Some young men were conscripted into the army; whole families were banished as far north as

Archangel and Finland, and eastward over the Ural Mountains to Siberia. A number escaped southward to a new frontier by the north shore of the Black Sea.

When Tsar Alexander I came to the throne of Russia in 1801, he introduced a general policy of leniency toward sectarians. Proclaiming to his provincial governors that harsh persecution was useless as a remedy for "religious error," the liberal young Emperor approved of a plan whereby Dukhobors — with the exception of those owned as serfs by the landlords — should be granted permission to congregate near the mouth of the Milky Waters River, north of the Black Sea. To this fertile area of fine climate, Dukhobors from many parts of Russia came to form a new settlement under the leadership of Savely Kapustin. Kapustin, unlike the blustering Pobirehin — was not a man to let outward demonstration of vanity threaten his rule over the sect. To State and Church authorities he posed as an "equal with all the other brothers and sisters who sometimes elect me as their spokesman." Once more the aptitude of the people for agriculture and hard work brought prosperity to the new settlement.

Kapustin's successors to Dukhobor rulership failed to inherit his organizing ability. His son Vasili Kalmikoff — whose name had been changed to Kalmikoff to avoid exposing the dynasty — assumed the office of "christ" and ruler and became a drunkard. At the death of Vasili Kalmikoff, his son, Illarion, became a ruler who was noted chiefly for his debauchery.

By 1841, the Milky Waters area had ceased to be a frontier, and in that year the Imperial Government charged the Dukhobors with murder within the sect. By subsequent Tsarist decree, all who refused to join the Orthodox Church, were exiled eastward to Caucasia, then a little governed frontier of Russia. Their place of banishment was high up in the "Wet Mountains" where early frosts precluded the ripening of grain other than barley. Thus the trend was toward sheep and cattle raising, and the Dukhobors, always at their best when pioneering, built toward prosperity with surprising rapidity.

The Russian Government, pleased with the agricultural progress of the settlement, and anxious to extend its influence south toward the boundaries of Turkey and Persia, soon allowed the Dukhobors to take land in the fertile lowlands where life became easier for the people. Peter Kal-

mikoff, third of the Kalmikoff rulers, died after declaring that the "Holy Spirit" would enter his wife, Lukeria Vasilivna Kalmikova. Under Lukeria's able rulership, the Dukhobors became wealthier than at any time before or since. They tilled many acres of grain land and grazed thousands of sheep, cattle and horses.

Lukeria on her deathbed willed the rulership to Peter Vasilivich Verigin, a handsome relative who was in constant attendance on her during the latter years of her life. While about 10,000 Dukhobors accepted Peter Verigin as their ruler, some 5,000 rejected him in favour of Lukeria's brother and his business associates. During the bitter dispute which culminated in the division of the sect at Lukeria's graveside, Verigin was arrested by Tsarist police in sympathy with the opposition.

Verigin, accused of "posing as Christ, Prophet and Tsar", was exiled to Archangel and later to Siberia. His banishment served to increase his followers' belief in his divinity, and to increase their opposition to the Imperial Government. Contact with other exiles led Verigin to discover the non-violence philosophy of Tolstoy. He became greatly interested in Tolstoy's views and was thus stimulated to urge his followers to absolute pacifism, through messages which he managed to send to them in secret.

Thus, on June 29, 1895, in Caucasia, the Dukhobors built three huge fires and therein destroyed the weapons which they had used for occasional hunting and for protection against roving hillsmen who had, in the early years of settlement, conducted sporadic raids on their villages.

Simultaneously with the burning of their guns and long-knives, the faithful openly flaunted the Imperial Government by refusal of military conscription.

In an effort to discourage this dangerous insubordination, the Government dealt harshly with the Dukhobors. At one of the great fires by a Wet Mountains village, 200 Cossacks charged into about 2,000 men and women who were singing psalms while their guns were being consumed in the flames. Beaten unmercifully with lead-loaded whips which tore their clothing from their backs and seared their bodies with welts which some carry to this day, the Dukhobors remained obdurate when driven to the Governor of Tiflis. Their code of passive resistance forbidding them to retaliate, and thrashed and bleeding though they were, they stubbornly insisted that they could not obey the laws of the Government not consistent with the laws of God. Late in July of that year, more than 4,000 were exiled farther north into the Caucasian Mountains, to an area of rocky hills and fever-ridden swamps where hundreds suffered death from exposure and starvation.

Tolstoy, unaware that his writings had stimulated Verigin to an experiment in absolute pacifism, was incensed with the way the Russian Government dealt with the peasants. The great writer took from his files his unfinished book "Resurrection" and began to complete it so that he would have funds available to help the Dukhobors depart from Russia. Alymer Maude, Tolstoy's English friend, journeyed to Canada where he found Canadian immigration officials willing to welcome the Dukhobors

Dukhobor women pulling a plow on virgin land north of Yorkton, Saskatchewan, in the spring of 1900. An old man is guiding the plow. At this time all the able-bodied men were away to earn money at railway construction.



to the Prairies. With the aid of the Quakers in both England and the United States, the first ship-load of immigrants left Batum on the Black Sea, December 10, 1898.

By the summer of 1899, more than 7,000 Dukhobors were settled on the rolling wooded prairie of the North West Territories, near Swan River, Yorkton, and Prince Albert, respectively. On Canada's prairie frontier the Dukhobors, who came almost penniless, again demonstrated their aptitude for agricultural pioneering. In the settlement north of Yorkton, while the younger men were away working on railway grades for money with which to purchase livestock and farm implements, the young women hitched themselves to the few plows possessed by the community, and thus turned over the virgin sod for the first crop of vegetables and grain.

Peter Vasilivich Verigin was still in Siberian exile, the Russian Government having refused him permission to leave the country. Difficulties and disputes arose in the rulerless communities in Canada, and in the fall of 1902, about 2,000 men, women and children, believing themselves to be acting on instructions sent in secret from Verigin, set out across the prairie in search of a "promised land." Overtaken by a snowstorm the pilgrimage was intercepted by North West Mounted Police at Minnedosa, Manitoba, where the weary pilgrims were loaded in railway coaches and returned to Yorkton.

A few months later, Verigin, released from exile, was received with religious fervour by his followers in Canada. In the spring a small number of men removed their clothing as a prelude to another search for the promised land. They hoped, at least, to win their leader's praise for a zealotry more pronounced than the pilgrimage of the previous year. This naked march, the result of a peculiar combination of religion and politics, was the first of a series of "nude parades" which have attracted so much attention to the Dukhobors.

Despite the vagaries of the intermittent nudists who called themselves Sons of Freedom, and in spite of the opposition of a small but growing number of Dukhobors who wished to live independent of the community, Verigin's Christian Community of Universal Brotherhood prospered. Thousands of acres of virgin prairie,

plowed by horses and steam tractors, were sown to wheat. The Dukhobors' record for monetary honesty was such that merchants readily gave goods on credit to the settlers. All the merchants wished to know was that the applicant for credit was a Dukhobor.

But in 1906 there was trouble with the Canadian Government. Verigin, anxious that his followers should hold allegiance to himself only, slyly urged them not to take the oath of allegiance to the British Crown. By the Canadian land laws they were bound to do so before they could obtain titles to their homestead land. As a result of their refusal, much of the land allotted to them was taken back by the Canadian Government. This, together with Verigin's antipathy toward the children attending schools, led him to search for land in the southern interior of British Columbia. To the Nelson and Grand Forks districts he moved several thousands of his followers who there had their first experience with fruit growing. The settlements prospered partly through Verigin's introduction of a harsh internal economy.

During the first Great War of 1914-18, the Canadian Government maintained its Order in Council which allowed the Dukhobors exemption from military conscription, along with other conscientious objectors.

Verigin, while on one of his frequent train journeys from the Dukhobor village of Brilliant, to Grand Forks, met a spectacular and mysterious death in a railway coach. On October 29, 1924, he was blown from his seat by an explosion which caused the death of eight other passengers. The cause of the detonation which shattered the coach on the moving train, remains a mystery, except that investigators found that dynamite had been secreted in the coach.

His followers, some of whom waited three days by his tomb in the expectation that he would rise from the dead, turned their attention to his estranged son in Russia, Peter Petrovich Verigin. The majority were now convinced that the Spirit of Christ had entered his body, and they sent a delegation of two men to invite him to Canada. Young Peter promised to come, but it was not until almost three years later that he chose to leave Russia as an alternative to serving a term of exile in Turkistan, by order of the Soviet Government.

During the leaderless period the faithful in British Columbia resisted attempts to have them comply with the land, vital statistics, and school laws. Not long after the arrival of Peter Petrovich Verigin, the Dukhobor troubles in British Columbia and Saskatchewan were accelerated.

While he consistently denied all responsibility for the long list of incendiary fires which destroyed scores of school-houses and other buildings in and near Dukhobor settlements, his irresponsible and violent behaviour was well known. Soon after he began serving a term for perjury, in the Saskatchewan Penitentiary, 600 men and women paraded nude in British Columbia. They were arrested and sentenced to the maximum penalty of three years. As there was not sufficient accommodation for this large number of prisoners, the Federal Government built and maintained a special penitentiary on Piers Island, a small island off the coast of British Columbia. The children of parents who had appeared nude and children who had themselves appeared nude were yet another problem. Ranging in age from one to seventeen years of age, they were sent to homes, orphanages and industrial schools.

Canada's Dukhobor problem continues mainly in British Columbia. When hundreds of boys and girls are growing up in the negative atmosphere of the Sons of Freedom villages isolated from normal contact with other Canadians, when they reach maturity without having seen the inside of a school, when their minds are confused by the "rasputanic" behaviour of "god-men"; when outbreaks of incendiarism and dynamiting continue, it becomes evident that the expensive Piers Island experiment was not a cure.

It is important that the children should receive education in the regular schools. But it is also apparent that the school system of Canada was not designed to

bridge the gap between the superstition, credulity and negation of those Dukhobors who have been unable of their own accord to make their individual adjustments here.

For instance, there is the case of a Dukhobor girl who attended high school and later found employment as a waitress in the Proctor Hotel, near Nelson. She was a good waitress. She was seemingly standing on her own feet spiritually and mentally to the extent of the average Canadian citizen. But when the Sons of Freedom Dukhobors began parading in the nude prior to the Piers Island incarceration, she left her job, joined her relatives in the parade, stripped off her clothes and was sentenced along with the others.

It should be obvious that there is need for education somewhat extraneous to that of the ordinary school system — a necessity for extra methods to meet an extraordinary situation.

Before offering a solution to the problem, I would briefly trace it to its origin. It is due to a sincere belief among the fanatical element of the Dukhobors that they, in their strange career of negation and destruction, behave "in the true Christian way," act in accord with "God's law" and the wishes of their leaders to whom they attribute special powers of divinity. Many Dukhobors in this category believe, and sincerely so, that their late enigmatic ruler, Peter Petrovich Verigin, was Christ. This turbulent Verigin who was variously convicted in Canadian courts of assault, perjury, vagrancy and drunkenness, this man who lost thousands of dollars — money earned by the toil of his people — at poker; this ruler who lived his own life in diametric contradiction to the professed and actual religious tenets of most of his followers, explained his behaviour to the faithful in an ingenious way. He explained that he being Christ would much prefer to live as Christ lived 2,000 years ago. But when Christ lived



as Christ 2,000 years ago, the Government found out, persecuted him and put him to death. Thus, Verigin, much against his personal inclinations, lived a disorderly life in order to fool the Canadian Government that he was not Christ. If he lived an outwardly good life, the Canadian Government would discover his identity and persecute him even unto death. This explanation of Verigin's given at times with tears in his eyes, was accepted by the most credulous who through their tears saw him as a martyr suffering for them.

In secret, Verigin encouraged the Sons of Freedom to incendiarism. To the police, the newspapers and to government officials he reiterated that he was powerless to stop the fanatics, he lived in fear for his own life at their hands. Then — after thus publicly declaring himself — in his secrets with the Sons of Freedom he assured them he was forced to condemn them in public, in order to mislead the "harsh government."

The solution to the Dukhobor problem is essentially one of assisting the credulous to see the fallacy of their faith in a rulership that mingles so devastatingly with their chaotic philosophizing, and, further, to help the misguided individuals to spiritual and mental independence. This can best be accomplished by Dukhobors, by young men and women who themselves have been able to combine in their own lives the worth-while characteristics of their Russian ancestors with the most desirable features of Anglo-Saxon civilization in Canada. There are, in Saskatchewan, such young men and women — some of whom have attended university — who would willingly leave their farmsteads and go to the

interior of British Columbia there to live among their less fortunate brothers and help them, mainly by example, toward a constructive way of life. But these young people on the Saskatchewan farms have not the money to purchase a railway ticket to British Columbia, and in some instances it would mean that their parents would have to hire help at home when they are not in financial position to do so.

While Canada's "Dukhobor problem", now concentrated in British Columbia, may become yet more acute, it is well to know that there are hundreds of Dukhobors who are fine neighbours and good citizens. They have, of course, left behind them all belief in the divinity of the Verigin dynasty. Many are associated with the Independent Society of Dukhobors, a loosely tied organization affiliated with historic peace groups in North America. While the majority are independent Dukhobors farming in Saskatchewan, there are doctors, dentists, engineers and other university graduates of Dukhobor lineage.

One of the leaders in the Society of Independent Dukhobors is Alderman Peter G. Makaroff, K.C., of Saskatoon. His father was one of the first to break away from the rulership of Peter Vasilivich Verigin in the early days of Canadian settlement. The younger Makaroff was the first Dukhobor to enter a university.

The persistent tendency of the Dukhobors to philosophize, their stubborn courage so often maintained in face of material loss and physical hardship, may well combine with what is generally called "common sense" to make a valuable contribution to Canadian life.



The Markoff family, of the faction that broke away from the rulership of Peter Vasilivich Verigin when the Dukhobor sect split in two after the death in 1887 of the woman ruler, Lukeria Vasilivna Kalmikova. This photograph was taken in 1914, in the Markoff house, in the village of Slavanka, Caucasus, birthplace of Peter Vasilivich Verigin.

INDIAN LIFE IN MEXICO

by RODNEY GALLOP

EARLY in 1936 a new Indigenous Department was created in Mexico which may well be compared with the Canadian Department of Indian Affairs. Indian problems in the two countries, however, are very different. The European invaders of North America came to colonize; those of Central and South America, to enrich themselves and, if possible, return whence they came. The former found the New World sparsely populated with nomadic, hunting tribes at a low level civilization, with whom there was little or no possibility of compromise. The Spanish Conquistadores found Mexico thickly inhabited by a settled agricultural people whose civilization had flowered in the splendours of Montezuma's empire with its capital of Tenochtitlan (to-day Mexico City) which aroused their envy and admiration. In spite of the hardships which they suffered the Indians of Mexico were never in any danger of being wiped out. Indeed, intermarriage between the two races began at once. The history of Mexico was one of assimilation rather than annihilation, and although they dominated the country for three centuries it was in the long run the Spaniards who were assimilated.

Estimates differ as to the proportion of pure Indians in Mexico's present-day population of eighteen millions. Probably they amount to just about one-third, since those of mixed blood are estimated at over one-half, and the number of pure whites is relatively insignificant. *Mestizos* of mixed blood predominate in the thinly populated plains of the north and there is an almost pure Indian belt in the south, where in any case the *mestizos* have far more Indian blood than white and follow the same mode of life as the Indians.

With this Indian preponderance the visitor from North America might expect to find, as he travels southwards, an ever-increasing purity of Indian customs and modes of life and thought. This is not quite the case, however. If the Indians of Canada and the United States have either lost their identity or faithfully

preserved the ancient heritage of their race, Indian Mexico represents a compromise between these two extremes. The Mexican Indian has steadily evolved, and his culture to-day is a fascinating mixture of native and European elements.

In his book "Peace by Revolution", Mr. Frank Tannenbaum quotes a friend as saying that there are three classes of Indian in Mexico: those on the plantation who feel themselves the white man's inferior and look on the ground while talking to a stranger; those in the villages who feel themselves a white man's equal and look straight at him while addressing him and those in the mountain tops who consider themselves a white man's superior and look down upon him while addressing him.

To find this third class you must go into wild and inaccessible places: to Sonora for the Yaquis, Sinaloa for the Coras, Chihuahua for the Tarahumaras and Nayarit for the Huicholes. Here you will still find the bow and arrow in use, fire-worship, totem dances like the Deer Dance of the Yaquis, pagan ceremonies at night and strange pre-Spanish costumes like those of the Huicholes. Theirs is a truly native way of life. But fascinating as they are, they only represent an insignificant fraction of the whole, doomed to extinction, one fears, if they will not move with the times.

Real Indian Mexico, while remaining highly individual, is less remote from civilization. It is the Mexico of the Aztecs, Otomis, Mayas, Totonacs, Tarascans, Zapotecs, Mixtecs, Chinantecs and countless other tribes speaking two or three score different languages, eighteen of which have not even a single root in common. Not long ago a Canadian Cherokee on a visit to Mexico found that although he could not understand the Nahuatl dialect of the Aztecs he could converse freely in his own tongue with a Chatino from the State of Oaxaca.

If the Indian heritage has been influenced by Europe among these tribes, it is generally not difficult to disentangle



the one from the other, and to point to many things which have endured since long before the Spaniards set foot on Mexican shores. Of course, there are certain things common to both cultures. It is disconcerting, for instance, to come upon the symbol of the cross and the skull and cross-bones used as an emblem of death on pre-Spanish pyramids, and to find that Aztec dancers used to be accompanied by Fools with animal and other masks like those who belong to the old English Morris Dances.

The essentials of life such as food, clothing, notions of agriculture and folk medicine are very much what they were in the days when men worshipped Tonatiuh and Quetzalcoatl. Maize (the sacred *teocintli* of the Aztecs) and beans are still the principal food and are prepared in exactly the same way. The maguey cactus is still the "green cow" which gives the Indian fibre to make himself clothes and cord as well as the milky *pulque* drink, the intoxicating qualities of which are set off by its newly discovered richness in vitamins.

When King George V lay dying, a British resident in Mexico City, who has many Indian friends, was approached independently by two of them. The first begged him to telegraph that if the King were to drink two pints of the blood of a freshly killed deer, an Aztec specific for heart trouble, his life would be saved. The other offered to give him, for transmission by air mail, a secret Aztec remedy distilled from seven herbs culled at the new moon.

Music is a particularly good example of the blend of the old and the new. One still finds the old Aztec drums, the horizontal *teponaztli* and the vertical *huehueltl*, the tomtomming of which served to drown the cries of the sacrificial victims. Alongside of them flourish the pipe and drum, the guitar, the fiddle and even the harp.

To discover survivals of the old religion is more difficult, for the Roman Catholic Church was thorough in the task it set itself of stamping out the worship of the old gods. Such traces as one finds are all the more precious. I know a village not much more than a hundred miles from Mexico City where a pre-Spanish *tepo-*

(1) Mexico had no wheeled traffic or beasts of burden before the Spaniards came. To-day many burdens are still carried on men's backs. These porters are carrying their wares to sell at a market or fiesta.

(2) An Aztec pipe-and-taborer wearing the characteristic *sarape* blanket. He plays the pipe with one hand and the little tabor drum with the other.

(3) Sucking from the heart of the *maguey* aloe the white liquid which is fermented into the native drink of *pulque*. The leaves are folded over to prevent the rain from entering.

naztli drum is kept on a little altar decked out with flowers, and with copal incense burning before it. Once a year, at night, it is taken out, and a fiesta is held in which an Aztec hymn is sung to Xochipilli "Prince of Flowers" the Aztec god of song and dance.

Most fascinating of all these ancient ceremonies is the *Juego de los Voladores* (Game of the Flyers) which so amazed the first Spaniards, and which I have been lucky enough to see more than once in certain Otomi and Totonac villages in the Sierra de Puebla. A tree, anything from 50 to 80 feet in height, is cut down in the forest and stripped of its branches. The trunk is brought into the village and planted in the churchyard in a hole in which a turkey, the sacrificial bird of the Aztecs and other offerings are first buried. Vine stems are entwined round the pole so that it may be climbed, and on the top is set a hollow, revolving wooden cap, from one to two feet in diameter, from which a light frame is hung, with four or six sides according to the number of flyers. These are dressed in scarlet dancers' raiment, dimly recalling the bird costumes in which Montezuma's subjects performed the ceremony. One of them carries a pipe and tabor, drumming with one hand and piping with the other. First they dance before the church and then at the foot of the pole, thus conforming to both pagan and Christian usage. Then they climb to the top and ensconce themselves on the frame, where long ropes have been wound round the top of the pole. Fastening these round their waists, at a given signal they hurl themselves backwards into space. Their weight on the ropes sets the cap spinning round, and this in turn uncoils the ropes so that the flyers, head downwards and grasping the ropes with their feet or swinging about in the air, are carried round in ever-widening circles, lower and lower until just when it seems that they must be dashed against the ground they right themselves and land like children on a Giant Stride. Among the Totonacs the musician climbs on to the cap before the flight and at that dizzy height plays and dances a stamping, leaping Indian dance, remaining seated on the spinning cap while the other four fly. Two years ago he fell and was killed, while



(1) Ancient Indian instruments still played at the shrine of *Sacro Monte* on the Sunday before Lent. On the left is the *huehuell* or vertical drum. On the right are two *teponaztlis* (horizontal drums), the farther one pre-Spanish, the nearer a more recent copy.

(2) Aztec Indians drinking from a gourd the fermented *pulque* which is kept in the pigs' skins seen in the background.

(3) The *Juego de los Voladores*. The flyers at the beginning of their perilous flight. The musician may be seen playing his pipe and drum.



* An Indian family returning from market, father riding the donkey, mother on foot with the baby on her back.

some years earlier the pole snapped and there were no survivors. This method of performing the rite is the closest to the Aztec tradition, the four flyers representing the four points of the compass, and the thirteen circles which each described round the pole making a total of fifty-two, the number of years in the Aztec *xiuhtonalli* cycle which played such a part in the old religion.

Among the Otomis each of the six flyers takes it in turn to dance on the cap before the flight, but none of them stay there during it, the musician flying with the rest and never ceasing the skirl of his pipe and the throb of his drum as he is whirled through the air head downwards. Another innovation among the Otomis is that one of the men is dressed as a woman and is said to represent Malinche, Cortes' Indian mistress and interpreter, who played so great a rôle in the Conquest.

This Malinche figures in one form or another in many of the ceremonial dances which make the fiestas so bright as well as so important a feature of Indian life.

Generally these fiestas correspond in date with religious festivals, and there are sometimes processions and religious plays. But in the beginning their dates must have been fixed by the seasons of ploughing, sowing and harvest. Why else should one village celebrate its Carnival on the first Sunday in Lent, and the various Fridays in Lent be the occasion for some of the gayest fiestas in the year? Here the Christian and the pagan are inextricably mixed. In the early days of the Conquest, priests and monks found the Indians doing dances of their religion. They found it easier to alter these dances than to prohibit them. So to-day you may see the "Dance of the Moors and Christians" done by people who have no idea of who the Moors were and very little of Christianity; and doing it with such a will with their long *machete* cutlasses that sometimes there are dead and wounded left on the field of battle. Generally Santiago, St. James the Patron Saint of Spain, commands the Christians, and Pontius Pilate the Moors, while the



Every Sunday a market is held at this little lakeside village to which the Tarascan fishermen of Janitzio bring their fish to barter it for firewood. The dug-out canoes are being reloaded with firewood.

costumes and the texts of the speeches and challenges recall 16th or 17th century Spain. Sometimes the combat is given a different explanation, and the Indians enact their own defeat at the hands of the Spaniards or their victory over Maximilian's French troops at Puebla in the middle of last century.

Besides these there are the Dance of the Apaches, the humorous Dance of the Old Men, the Reed-Throwing Dance in which canes lightly fastened together are thrown out like extending fishing rods to make a crown over a diminutive Malinche who holds a silver snake, emblem of the old rain gods; and many more too numerous to mention. Even when there are no dances the fiestas are enlivened by rockets and by the *torito* a frame of fireworks in the shape of a bull, carried among the crowd on a man's head and finally set alight.

Whether you mingle with the Indians at their fiestas or seek them out in the quietude of their homes and daily occupations you will find them a people of quick

humour and charming courtesy, at all times ready to respond to the advances of those who are prepared to meet them on their own ground.

Glossary of Mexican terms used

- Huehuatl: a vertical Aztec drum.
- Machete: the straight or curved cutlass carried by Mexican Indians.
- Mestizo: one of mixed Spanish and Indian blood.
- Pulque: a mildly intoxicating drink made by fermenting the milky juice of the maguey aloe which gathers in the heart of the plant every nine years when it is about to bloom.
- Teocentli: the original sacred maize of the Aztecs from which Indian corn has been developed.
- Toponatzli: a horizontal Aztec drum formed by hollowing out a tree trunk and making an H-shaped incision in the side, thus leaving two tongues of wood with different vibrations and giving different notes when struck.
- Torito: a bull-shaped frame covered with fireworks, carried on a man's head and eventually set on fire.
- Xiuh-tonalli: the fifty-two year cycle which played an important part in pre-Spanish mythology and religion.



Left:—Tarascan children with
a canoe paddle.

Below:—On the day of St.
Anthony the Abbot children
decorate the domestic animals
and bring them to the church
to be blessed. A group of
Aztec youngsters with hens
and a turkey.





Left:—A Tehuana Indian girl with the painted and decorated gourd she will offer at the church fiesta.

Below:—Indians dressed as Sappers of Emperor Maximilian's period in the Carnival of Huejotzingo, their white masks contrasting with their brown hands.



Below:—Masked actors in a Passion Play.





The Acatlachque (or Reed Throwing) Dance. In the middle is the boy who acts the female rôle of Malinche, hoisted on a trestle while the reeds are thrown over him in the shape of a crown.

A scene on fiesta day.



APPLE MARKETING

Radio Talk by W. L. WHEELER

THE purpose of this talk is to acquaint the public with steps being taken by the Marketing Service, Dominion Department of Agriculture, to stimulate and regulate the marketing of apples, and the necessity therefore.

First it may be well to review briefly the situation resulting from war restrictions on export shipping space. Usually enjoying export markets, principally in the British Isles, for approximately one-half or 7,500,000 bushels of Canada's apple crop covering 15,000,000 bushels, this autumn and winter exports may total below 4,000,000 bushels.

The normal home consumption averages only slightly above 30 pounds per capita, a surprisingly low figure perhaps. Even if the marketing plans to be explained can increase this to 40 pounds per capita, an apparent surplus of approaching 4,000,000 bushels has to be disposed of under an orderly conservation and marketing plan.

In order to exchange views and reach conclusions with the apple producing, shipping and distributing industries the Marketing Service recently convened a conference of key men across Canada, from which a policy or programme was evolved with the following details that may be of interest to the public generally.

In the Annapolis Valley of Nova Scotia, where normally about 5,000,000 bushels or in the vicinity of three-quarters of their packed-out crop would have been exported, manufacturing by canning and drying is to be stepped up to a total of as much as 4,000,000 bushels unless as the shipping season progresses their trans-Atlantic exports exceed present expectations. In brief the manufacturers are to be protected against loss in manufacturing so much in excess of their usual sales of these products and in paying approximately 65 per cent of the three-year average price for the two top grades, No. 1 and Domestic, instead of the lower grade apples.

The growers and shippers of the Okanagan Valley of British Columbia are next hardest hit by the prospective reduction in export marketing. Of a crop expected to pack out about 5,000,000 bushels they would have exported one-half or better. Just here the 1938-39 percentages of exports to total crop will help the story and be of some interest—Nova Scotia 73.8 per cent, British Columbia 53.7 per cent, Ontario 12.4 per cent, and the all-Canada average 55 per cent.

Under present conditions British Columbia shippers are "budgeting" for export sales of one-quarter to one-third of the total crop, and for sales in the Prairie Provinces at least 50 per cent above the average of very recent years because of substantially improved purchasing power.

The Marketing Service has undertaken an advertising and sales promotion campaign in Western Canada which together with aggressive selling pressure by the shippers and distributors is expected to find markets for the major portion of the apparent surplus of British Columbia apples.

Additionally a measure of protection is assured the Okanagan Valley shippers in packing and storing for possible export the smaller sizes in certain varieties usually exported, to maximum quantity of 500,000 boxes remaining unsold at March, 31st, 1940. If necessary these will be purchased by the Dominion Department of Agriculture.

The reference to exporting smaller sizes may not be entirely clear to some listeners. The Canadian preference is for apples of about 4 ounces in weight or $2\frac{1}{2}$ inches diameter and larger; but in the British Isles and especially in box-packed dessert varieties, the trade demand is for apples of 4 ounces and smaller; which means that it is a bad season for British Columbia when in late season the apples continue to grow or "size", reducing the proportion of so-called export sizes.

Ontario's exports totalled 300,000 bushels last season, and this season would have been slightly higher. An advertising and sales promotion campaign to be undertaken also in Eastern Canada is expected to result in a consumption increase of at least 50% of their anticipated exports, and here the Department has undertaken to purchase the quantity remaining unsold at March 31st to a total of 75,000 barrels or approximately 200,000 bushels of the top grades in those varieties of which Ontario has exported substantially in recent years, at prices based on 65% of the three-year average net return.

Of particular interest to the consuming public, however, is the provision recommended to and adopted by the Dominion Marketing Service for automatic reduction of the quantity of apples to be offered to retail. The minimum grade requirements have been raised, and became effective on September 30th. The grade known as No. 3 disappears; this quality of apples can be manufactured, fed or dumped. The minimum diameter in the second or Domestic grade is increased by one-quarter inch, that is, to $2\frac{1}{4}$ and $2\frac{1}{2}$ inches by varieties in two main groups, and the colour requirement is increased. No. 1 grade is unchanged.

These changes are believed to deserve enthusiastic acceptance and support of the consumers everywhere. Better quality apples will be priced very favourably against previous offerings averaging lower in size, colour and freedom from blemishes. The consumer can assist by demanding original packages bearing the Government grade mark No. 1 or Domestic, or Extra Fancy, Fancy or "C" if packed in boxes, or in asking to see the grade mark when buying in smaller quantities. If your retailer is unable to show or convince you that his apples were purchased under one of the recommended grade marks you will be supporting the movement for better apples by telling him why he did not make a sale.

One more measure of co-operation is desired of the consumer. Explaining what it is will also make clear what is suggested should happen to the low-grade apples which no longer can be packed or sold

under Government grade mark. This quality of apples should be manufactured. The best of them, large and well matured but perhaps spotty or without colour, are quite all right when peeled for canning or drying. Here again beauty is only skin deep. And apples which could not be called good "peelers" can be manufactured for apple juice, cider or vinegar in proportion to the demand for these products. Consumer enquiries for these products will result in the retailers stocking them more abundantly, and therefore increase their manufacture.

A few words may be of interest about pasteurized apple juice, a recent improvement for those who would rather have their cider "fresh" than "hard". Last season's pack of apple juice was larger than ever before, but was sold out before this new crop became available. Apple juice is very rapidly gaining popularity served cold as a breakfast appetizer as well as for beverage purposes generally. It is worthy of a place in every refrigerator. To those who have not tried it we suggest you give it a chance to share your consumption of fruit juices, and do not be surprised if a trial results in your joining the enthusiasts for this new product.

With the provisions outlined for absorbing and equalizing supplies, differing with the marketing prospects of the different zones, agreement was reached with the industry representatives for Government regulation or "zoning" of interprovincial shipping. The programme for manufacturing such a large share of Nova Scotia's apples still

leaves them a marketing surplus which could raise havoc if sacrificed in the consumption centres in Quebec and Ontario, so the Annapolis Valley apples will not be certified for shipment west of the Maritimes until the Quebec and Ontario supplies are substantially reduced.

Ontario and Quebec apples will not be certified for shipment to either Western Canada or the Maritimes.

British Columbia apples will not be certified for shipment into Western Canada until supplies there are satisfactorily reduced, when those varieties enjoying greatest popularity may be released.

The public is asked to realize that this is not just an "eat more apples" campaign. The facts are placed before you. Your cheerful acceptance and co-operation is invited. It is believed that there is this silver lining to the cloud, that increasing quantities of the less attractive apples will be manufactured, and the generally more attractive apples to be offered at retail will gain in popularity and demand.

There is no finer fruit than the Canadian apple, whether eaten fresh, in any of the desserts familiar to us all from childhood, or in the new product — apple juice. The apple is the keystone of the fruit industry in Canada. Remember the slogans "Help yourself to health" and "An apple a day". An apple a day would mean only about a bushel and a half per capita consumption per annum, but actually we do not eat half that much, in fact we do not grow quite that much.



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EDITOR'S NOTE-BOOK

J. Newell Stephenson (B.Sc.—Massachusetts Institute of Technology, 1909; M.Sc.—Rose Polytechnic Institute, 1911) was born in New Rochelle, N.Y. Following graduation he lectured at Rose Polytechnic Institute and the University of Maine. Mr. Stephenson's intimate knowledge of the industry on which he writes is reflected in the various offices he has held for many years:—Editor in chief of *The Pulp and Paper Magazine of Canada* since 1917; Editor in chief of *The Manufacture of Pulp & Paper* (5 volume text-book) since 1918; principal of The Institute of Industrial Arts since 1922. The Technical Association of the Pulp and Paper Industry awarded him the distinguished service medal in 1939.

J. F. C. Wright, writer and journalist, was born in England but grew up in Western Canada. While employed in newspaper work in Saskatchewan he became interested in the Dukhobors. His researches and first hand study have engaged his major attention for the past seven years providing an authoritative background for his article. Mr. Wright has just completed a 250,000-word book in which he records an exhaustive history of the Dukhobors.

Trevor Lloyd, F.R.G.S., F.A.G.S., was born in London, England, and was educated at the Sibford and Sidcot Schools and the University of Bristol. A Fellow in the Clark University School of Geography, Mr. Lloyd provides in this issue an instructive article dealing with "Wild Rice in Canada"—a subject which invited his attention while engaged in Ph. D. work in Manitoba.

Rodney A. Gallop, recently Chargé d'Affaires of the British Legation, Mexico City, for several years, is well qualified to contribute "Indian Life in Mexico". Mr. Gallop has had many books published, notably "Book of the Basques" (1930), and is an expert on the folklore of Portugal, Spain, Greece, Bulgaria and Yugoslavia.

AMONGST THE NEW BOOKS

The Canada Year Book, 1939. (The King's Printer, Ottawa, \$1.50).

The publication of the 1939 edition of the Canada Year Book, published by authorization of the Hon. W. D. Euler, Minister of Trade and Commerce, is announced by the Dominion Bureau of Statistics. The Canada Year Book is the official statistical annual of the country and contains a thoroughly up-to-date account of the natural resources of the Dominion and their development, the history of the country, its institutions, its demography, the different branches of production, trade, transportation, finance, education, etc. — in brief, a comprehensive study within the limits of a single volume of the social and economic condition of the Dominion. This new edition has been thoroughly revised throughout and includes in all its chapters the latest information available up to the date of going to press.

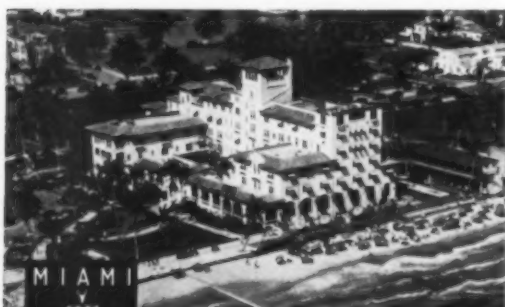
The 1939 edition extends to over 1,200 pages, dealing with all phases of the national life and more especially with those susceptible of statistical measurement. A statistical summary of the progress of Canada is included in the introductory matter.

In commemoration of the Royal Visit to Canada, colour plates of Their Majesties King George VI and Queen Elizabeth, together with official pictures of incidents connected with the unveiling of the National Memorial and of the Royal Assent to legislation of the 1939 Session of Parliament, appear as frontispiece.

By a special concession, a limited number of paper-bound copies have been set aside for ministers of religion, *bona fide* students and school teachers, who may obtain copies at the nominal price of 50 cents each.

ANNOUNCEMENT

Readers of the Journal will be interested in learning that the article "Poland's Fight for Freedom" published in the October issue, introduced the first of a timely series of articles planned to provide authoritative information on European countries which are at present commanding particular public attention. The second of the series, "The Baltic Merry-go-round" by Dr. Lawrence J. Burpee, will be published in the December number. Arrangements have been made for the preparation of the following articles for subsequent issues: Belgium by Chevalier Ernest de Selliers de Moranville, Attaché of the Belgium Legation; Switzerland by Mr. G. Jaccard, Consul General of Switzerland for Canada; and Hungary, Romania and Yugoslavia by Dr. Griffith Taylor, Professor of Geography, University of Toronto. Plans are also being completed for the preparation of articles on Luxembourg; The Netherlands; Lithuania, Latvia, Estonia and Turkey.



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AMONGST THE NEW BOOKS (Cont.)

Society Lecture: "An Alaskan Adventure" The thrilling story of an expedition to the summits of two of Alaska's greatest unclimbed mountain peaks was recounted by Mr. Bradford Washburn, leader of the expedition, to a capacity audience of members of The Canadian Geographical Society and their friends at the Victoria Memorial Museum, Ottawa, on Thursday, October 26th.

Mr. Washburn's lecture, entitled "An Alaskan Adventure" outlined the expedition's ascent of Mount St. Agnes (13,250 feet) and Mount Sanford (16,200 feet)—the highest unclimbed peak in North America. After a thrilling exploration by aeroplane of the remote and difficult approaches, the mountains were attacked during June and July, 1938, by two experienced climbing parties. Aeroplanes, sledge-dogs and a pack train were combined into two of the most carefully planned assaults ever delivered against Alaskan peaks.

The lecture was illustrated with a beautiful photographic record of the expedition's experiences in magnificent moving pictures and lantern slides in natural colour.

Although only twenty-eight years of age, Mr. Washburn is a veterans of four seasons in the Alps and eight expeditions to Alaska and the Yukon Territory. He is a member of the staff of the Institute of Geographical Exploration at Harvard University which sponsored his 1938 expedition in collaboration with the National Geographic Society of Washington, D.C. He is also Executive Director of the New England Museum of Natural History at Boston.

Dr. Charles Camsell, President of The Canadian Geographical Society, introduced the lecturer and the vote of thanks was moved by Mr. J. A. Wilson and seconded by Brigadier W. W. Foster, members of the Society's Board of Directors.

ADRIAN BELL who writes the exquisite chapter on the Fens and Levels in "The English Countryside" is the author of a book about the English countryman, which he has called *Men of the Fields*. "It describes with unusual insight and quiet charm the steady processes of husbandry at work throughout the seasons of the year, and shows the character and outlook, life and work, and the fine fight English farmers are making in these days of depression and neglect". Reading these wise and witty pages one comes to appreciate "something of the perseverance and humour, the fatigues and pleasures of those who are employed in the oldest of British industries". Mr. Bell shows that England still possesses much deeply agricultural country in which an ancient tradition is slowly and competently adapting itself to the needs of modern economies with very little outside help. "Men of the Fields" is a sincere and truthful book fittingly illustrated by a close friend and neighbour of the author, John Nash. To some, the line drawings, delicate and often witty in themselves, will have a deeper appeal than the lithographs, six in number, which with the striking jacket give the book its very distinctive country atmosphere.

Geology and Allied Sciences, a Thesaurus and a Coordination of English and German specific and general terms, by WALTHER HUEBNER (New York, Veritas Press, 1939, \$7.50). Part I, German-English, of this really monumental undertaking has now been published. Part II, English-German, is promised for this autumn. It will meet a long-felt demand in scientific literature and will be of invaluable assistance to scientific workers, librarians, and translators who too often have found the technical dictionaries inadequate to their needs. The work is the outcome of fifteen years of intensive research in the field of British, American and German literature. Besides geology proper, which has been dealt with exhaustively, other sciences have contributed in proportion to their relationship to geology, such as geography, physiography, mineralogy, meteorology, astronomy, biology, physics, chemistry, palaeontology, botany and zoology.

Alphabetically arranged, the Thesaurus contains more than twenty-five thousand specific and general terms in each language. The author states that special attention has been given to peculiarities of local use in the United States, Canada, Mexico, South America, in Africa, India and Australia as well as to those in Great Britain and Germany. A very useful feature is the grouping of related terms under one key term. The student will find these groups very useful as an introduction into the labyrinth of geological terminology. The author attempts to clear up an old difficulty by his Table of Comparative Nomenclature of "Cambrian" and "Silurian" at the end of Volume I. Indispensable in geological and other scientific libraries this work should greatly facilitate the international exchange of geological knowledge.

The Land of France by RALPH DUTTON and LORD HOLDEN (London, Batsford, 1939, 7/6 net). This book is the result of a most happy collaboration. It would be impossible to discern which author is responsible for the wealth of architectural knowledge, the intimate acquaintance with historical and literary associations, the sensitive appreciation of the innumerable varieties of landscape, but there can be little doubt that both appreciated to the full the unique atmosphere of the many "Departments" and show a connoisseur's pleasure in the delectable foods and wines characteristic of the different districts. The introductory chapter is particularly delightful in its penetrating and witty discussion of the contrasts between French and English climates, landscapes and people.

With so much ground to cover, the authors concentrate rather on lesser known places than on world-famous tourist haunts, which nevertheless often receive new and illuminating sidelights. "Calais . . . was obstinately held by the English until 1558, when the Duc de Guise expelled the foreign garrison; an event, which, in the opinion of Queen Mary Tudor, had an unusual effect upon her heart. From Calais in 1561 Mary Stuart, widow of François II embarked for Scotland; here . . . in 1815 Emma Lady Hamilton ended her resourceful life. Near the Hôtel de Ville once stood the Hôtel Dessein, which figures in the opening scenes of Sterne's 'A Sentimental Journey'".

With the aid of excellent end-paper maps showing the chief places mentioned in the text and the one hundred and thirty superb photographs we can travel from north to south of the land of France


either, enviably, as tourists, or with great enjoyment and profit as readers. Starting with Normandy and the Breton Peninsula, the following chapters are devoted to Alsace-Lorraine and the Northern Plains, The Chateau country; The Ile-de-France and the Cathedral country; Burgundy and the Central Plateau; The Biscay Coast and Northern Gascony; The Pyrenees; and the Mediterranean seaboard and the French Alps. There is an index both to place-names and illustrations. With its amazing fullness of knowledge, humour, gaiety and gifts of style this is a book to own.

Canadian Ways, by LEILA G. HARRIS and KILROY HARRIS, (Bloomington, Illinois, McKnight and McKnight, 1939), is a pleasantly written little book for boys and girls of the United States. A partially-animated map in bright colours forms the end papers, fortunately supplemented by a very good outline map on modified cone projection on which the young readers may trace their progress. The abundant illustrations are from photographs supplied by the Canadian Government and our two great railway systems. If this little book stirs its readers to a desire for fuller knowledge of Canada and a friendship with our people, it will have served a useful purpose. It is dedicated to a little American by his Canadian mother and Australian father.


Made in England, (London, Methuen, 1939, 15/9). Dorothy Hartley, well known for her writings on the life and work of the English people of past centuries has turned her attention to the present and in this remarkable book reveals how many of the old skills and handicrafts are still practised. Her travels through the English countryside in summer and winter with pen and pencil and camera have resulted in a very charming picture of the sturdy individualism of the men and women happily pursuing the old occupations in a world almost given over to machines and standardization.

The photographs are scarcely less graphic than Miss Hartley's clever line drawings which supplement her explanations of tools and their uses. The scope of her researches can only be indicated in barest outline by the chapter headings: *Wood, Stone, Metal, Bricks and Pottery, Leather and Horn, Wool and Feathers*. The second chapter is devoted to what are the most characteristic of British industries. Under *Straw, Reed, Grass and Willow* are described Thatching for houses, Haystacks, Greenrush thatching, Strawwork, Heather Besoms, Marrum Grass, Fine Work in Rush and Grass, Willow, the Osier, Preparing Willow Rods, Furniture and Basket Willow, Wattle and Daub and Hurdles. One is shown why hurdles, for instance, are a southern counties trade, that the most serious part of the hurdle-maker's job is choosing good material. "Hurdles are always of English wood: I have never found a hurdle-maker able to use any stakes but stakes of his own selection and usually of his own cutting. Historically hurdles are as old as anything made in England. In a manuscript of the tenth century the tiny Saxon figures skirmish around hurdles of all sorts. A bear-pit has a circular hurdle fencing and it is taken for granted that Adam used hurdles in his garden". This little quotation gives a taste of Miss Hartley's quality. It is an invigorating and deeply interesting book.


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Letters in Canada 1938, edited by A. S. P. WOODHOUSE, (Toronto: University Press, 1939, \$1.00). This comprehensive survey of the literary output of Canada is reprinted from the University of Toronto Quarterly, April and July numbers and, like its predecessors of former years, is eagerly welcomed by all those who are interested in the cultural progress of the Dominion. Again we have E. K. Brown dealing competently with the year's English-Canadian poetry, including two anthologies in which some promising new writers are recognized, collections of verse by L. A. MacKay, Louise Morey Bowman, Kenneth Leslie and others, and poetry which has appeared in periodicals, most of it maintaining a surprisingly high level.

The Survey of Fiction by J. R. MacGillivray, has fine stimulating criticisms of the more notable novels, historical fiction, nature stories, detective stories and novels of northern adventure. W. S. Milne in the section on Drama skilfully marshals before the reader not only the plays published in 1938 but such as have received their production during the year. In discussing radio plays, Mr. Milne expresses surprise that more Canadian writers have not mastered air technique. He pays tribute to the Little Theatre groups for their encouragement and fostering of the growth of a national drama.

"Remaining material" covers a wide and important field including arts and crafts, autobiography and biography, critical essays, writings on religion, education and current affairs, lectures and series of lectures, history, language and literature, philosophy and general science, and the social sciences. To these varied sections authoritative writers make valuable contributions.

French-Canadian Letters and New-Canadian Letters are admirably discussed by Felix Walter and Watson Kirkconnell respectively. Their commentaries and criticisms make informative and delightful reading.

As in former years the classified bibliographies are as complete as is humanly possible and afford a revelation of the immense amount of good work being done in Canada in all fields of literature.

FLORENCE E. FORSEY.

La Pénétration du Continent Américain par les Canadiens Français by BENOIT BROUILLETTE. (Granger Frères, Ltée., Montreal).

This book is a clear and detailed exposition of the penetration of the American Continent by the French Canadians. Its object is to show the rôle played by the French Canadians in America, in the development of fur trade, in the explorations and in the missions, during the period from 1763 to 1848, that is to say, from the Treaty of Paris to the Treaty of Buchanan-Pakenham concluded between Great Britain and the United States establishing the 49th parallel of latitude as the northern boundary of Oregon.

In his book, Mr. Benoit Brouillette follows the French Canadians everywhere they go, on the Mackenzie River, to the Arctic Ocean; through the Rocky Mountains, to the Pacific; beyond the Great Lakes; along the western tributaries of the Mississippi; and down south to New Orleans. Everywhere he finds the same race of adventurers; they are the "coureurs de bois", the traders, the heroes of the paddle and the canoe who give an ever increasing impulse to the fur trade, lay the foundation of towns, create posts, and, notwithstanding the dangers, the hardships and often the scarcity of food, go on paddling and singing the old Canadian river songs, happy in the free life they lead, guiding great explorers such as Mackenzie, Thompson, Fraser and others towards new discoveries and acting as interpreters between them and the Indians.

He mentions the numerous narratives left by French Canadians, such as those of Jean Baptiste Perrault, T. Verchères de Boucherville, François Victor Mailhot, Pierre Antoine Tabeau and others, and finally, he shows the work accomplished by the French Canadian Missionaries in the dioceses of Quebec, Baltimore, Detroit, Red River, Oregon and Columbia.

This book is not a history of America from 1763 to 1848 or even a history of French Canada during that time, but rather a description of the activities of the French Canadian during that period when so much of the continent was opened up by exploration and trade. The author mentions English and American traders and explorers only when they employ and are accompanied by French Canadians. We see Alexander Mackenzie coming down the river named after him or crossing the Rocky Mountains accompanied by French Canadians. Thompson who travelled continually during his career always had French Canadians with him as canoe men, guides, interpreters, etc. Simon Fraser traversed the river which now bears his name with four canoes manned by nineteen French Canadians and two Indians.

This book is well written, interesting and contains a wealth of information and an extensive bibliography of nearly three hundred references.

J. H.

Gdansk (Danzig) by JAN KILARSKI. Translated by W. A. Masszy. (The Maritime and Colonial League of Poland, Warsaw).

This book is one of a series sponsored by the Maritime and Colonial League of Poland under the title of "The Glories of Poland". As might be inferred from its origin, it is a description, from the Polish viewpoint, of the city of Danzig, its history and commercial relations, and in particular of its association through many centuries with the Kingdom of Poland. It bears throughout a strong flavour of the propagandist but is none the less of some interest as outlining the Polish viewpoint with respect to the subject of international discussion, and from which shot the spark of conflict.

Owing to its situation at the mouth of the Vistula, Danzig has for centuries been the chief outlet for Polish trade. It grew rich and powerful on the profits derived from the shipment of Polish grain and timber, and became one of the most important commercial centres of Europe. The partition of Poland a century and a half ago left the ancient city in Prussian lands with trade diminished by the division of its tributary areas among the three powers, Russia, Prussia and Austria. With the treaty of Versailles and the reconstitution of Poland as an independent state, Danzig was given the status of a free city under the supervision of the League of Nations and connected with Poland by the famous Polish corridor. Since then Poland has constructed a new port, Gdynia, on its own Baltic coast, which was handling rather more tonnage than Danzig and a much greater proportion in terms of value.

The book gives a rambling account of Danzig's history and commerce and shows considerable padding. Its description of Danzig's port is at times rather naive, being evidently intended for the enlightenment of an inland people who have never seen a modern port. The book is well illustrated with hundreds of photographs of Danzig's buildings and artistic treasures. It maintains a discreet silence on the racial difference and the old loyalties of the German inhabitants of the Free City.

P. E. P.



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CANADIAN COAL PRODUCTION UP

Coal production in Canada during the second quarter of 1939 totalled 3,133,976 tons compared with 2,822,970 tons in the corresponding period a year ago, an increase of 11 per cent. Bituminous coal output during April, May and June amounted to 2,796,316 tons; sub-bituminous coal, 86,736 tons and lignite coal, 250,924 tons.

Production from Nova Scotia mines amounted to 1,781,019 tons compared with 1,590,834 tons in the second quarter of 1938. Operators in Alberta reported an output of 800,295 tons made up of 543,930 tons of bituminous coal, 86,736 tons of sub-bituminous coal, and 169,629 tons of lignite coal. During April, May and June, 1938, Alberta produced 498,486 tons of bituminous coal, 50,076 tons of sub-bituminous coal and 196,503 tons of lignite coal. British Columbia's output, amounting to 363,442 tons, was 13 per cent higher in the second quarter of 1939. Mines in New Brunswick produced 107,925 tons compared with 69,353 tons a year ago. Saskatchewan produced 81,295 tons, a decrease of 15 per cent compared with the second quarter of 1938.

Imports of coal during the period under review, amounting to 2,429,383 tons, were 31 per cent below the tonnage imported during April, May and June, 1938. The United States supplied Canada with 708,516 tons of anthracite coal 1,248,975 tons of bituminous coal and 242 tons of lignite coal. Receipts from Great Britain included 361,036 tons of anthracite coal and 13,851 tons of bituminous coal.

Exports of Canadian coal during April, May and June, 1939, amounted to 76,038 tons, an increase of 25 per cent above the total for the corresponding months of 1938. Ports in Nova Scotia, New Brunswick, and Quebec cleared 50,758 tons of Canadian coal during the period under review, while shipments through western ports totalled 25,280 tons.

Canada's coal supply during the second quarter of 1939 (computed on the basis of production plus imports less exports) totalled 5,487,321 tons. During the second quarter of the previous year 6,267,518 tons were made available for use.

Canada's coal mining industry furnished employment to 22,764 men in April, 22,251 men in May, and 21,842 men in June. During the three months the output per man averaged 140.6 tons or 2.5 tons per man-day.

STUDENTSHIP IN GEOGRAPHY AWARDED

The aim of The Canadian Geographical Society is to advance geographical knowledge, and as one of its activities in carrying out its purpose, the Society is authorized to make awards for advanced study and research in Canadian geography.

A reserve fund has been set up for this purpose, and a Studentship in geography was offered this year to graduates of Canadian Universities who have shown distinctive ability in geography during their undergraduate course, and who wish to pursue postgraduate research work with the intention of obtaining a Master's degree.

The Society takes pleasure in announcing that the first Studentship was awarded to Miss Nadine Anrep Hooper, of Islington, Ontario, for the current academic year. Miss Hooper graduated with the degree of Bachelor of Arts in geography from Trinity College, University of Toronto, in June of this year, and will continue her studies towards the Master of Arts degree under the direction of Dr. Griffith Taylor, Professor of Geography at the University of Toronto, and a Director of the Society.



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